My Great Detective Notebook

By _____

My Great Detective Notebook

By _____

My Great Detective Notebook

By _____

Detective Notebook Page

Graph Name

Type of Graph used _____

Evidence Fact Sheet

Evidence/Fact	Number of Facts

Evidence Fact Sheet

Evidence/Fact	Number of Facts

Evidence Fact Sheet

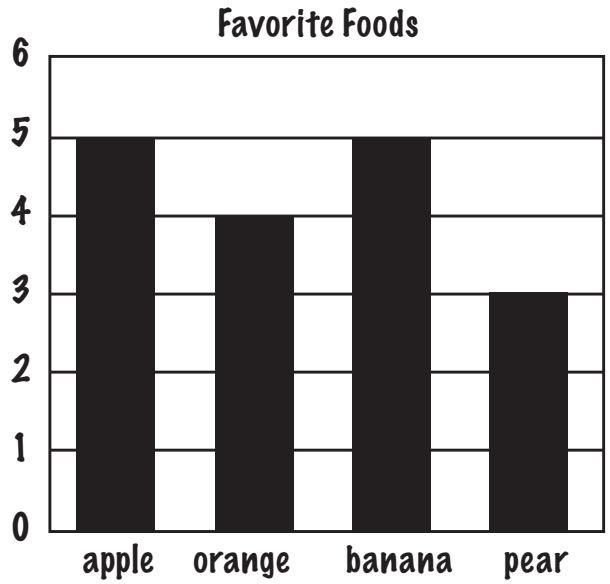
Evidence/Fact	Number of Facts

Evidence Fact Sheet

Evidence/Fact	Number of Facts

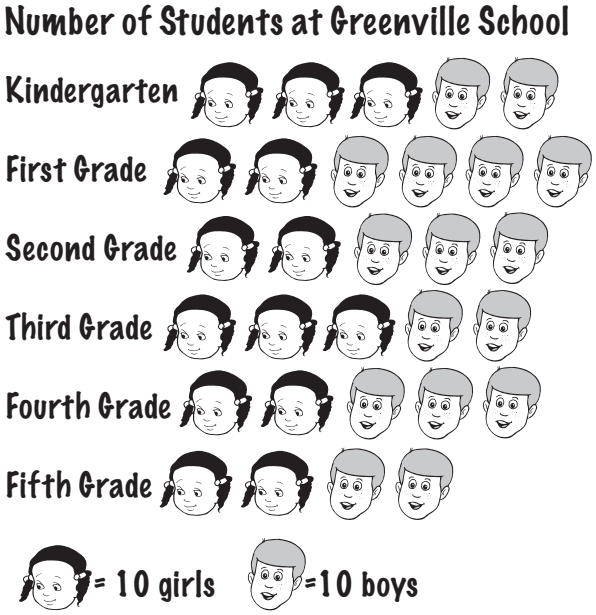
Clue Graphs

Bar Graph



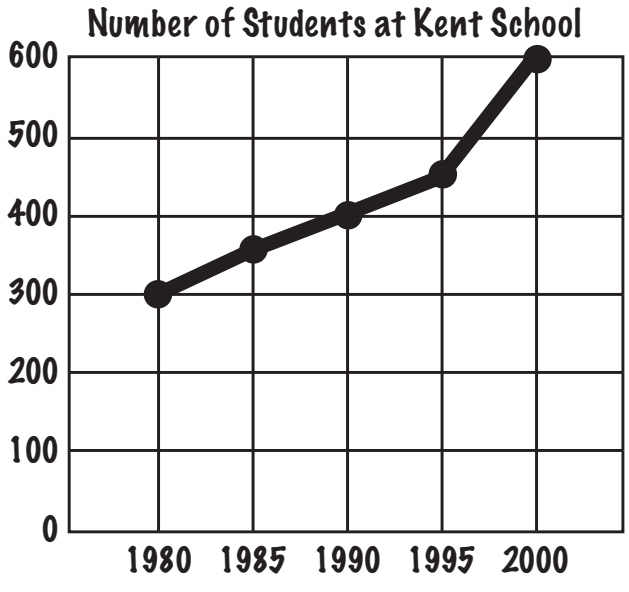
In a bar graph, the length of a bar tells how much or how many.

Pictograph



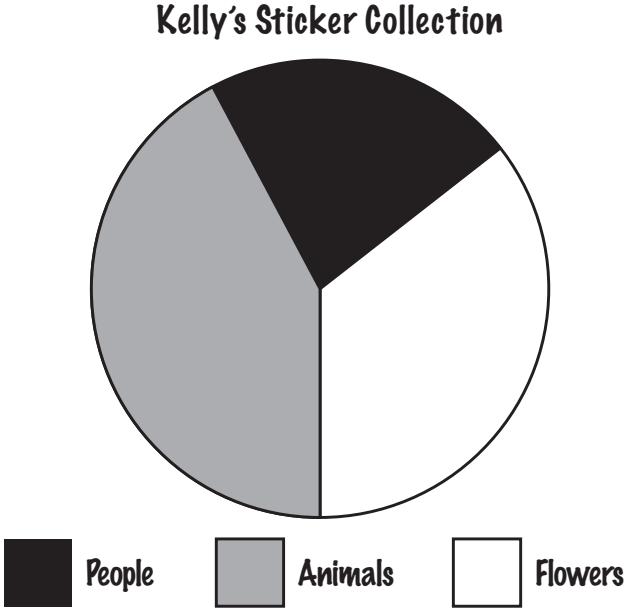
In a pictograph, each picture stands for a certain amount

Line Graph



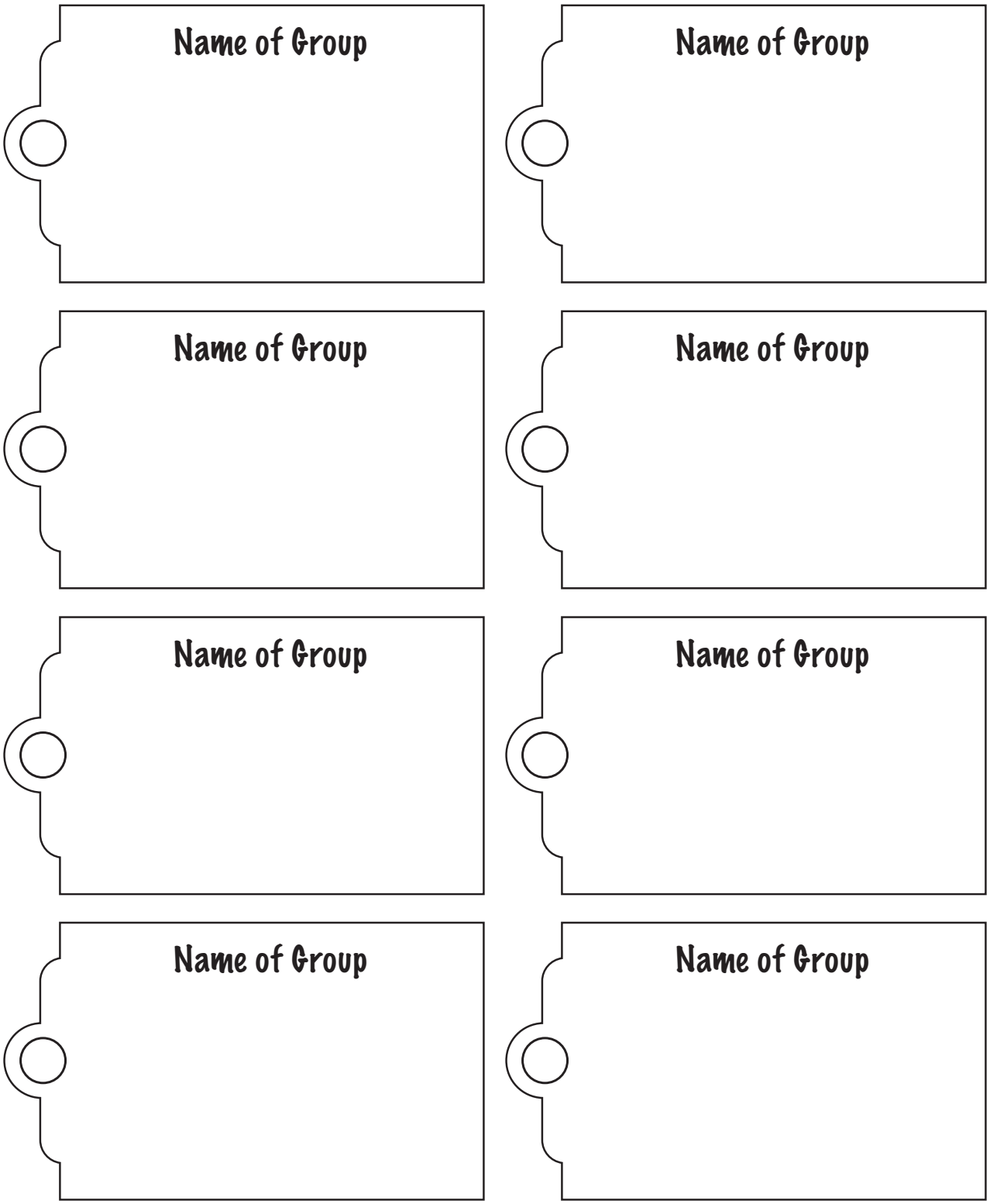
In a line graph, a line shows how something changes over a period of time.

Circle Graph



In a circle graph, the parts of a circle tell how much or how many.

Evidence Mystery Tags



Detective Badges

Seven Centers with Nineteen Cases

Center One: Plants

Materials: 1/4 sheet of paper for them to draw plants on. Seeds to grow a classroom plant.

Case #1: Provide paper for them to draw pictures of any plants we eat. Graph plants according to what part of the plant we eat, the top or the bottom, or the middle.

Case #2: Provide paper for them to draw a picture of their favorite plant they like to eat. Graph the results.

Case #3: Grow a plant as a class and graph the growth of that plant over a time determined by the class. Compare the growth spurts of the plant over time.

Center two: Animals

Materials: 1/4 sheet of paper for them to draw on.

Case #4: Provide paper for them to draw a picture of their favorite animal. Graph the results.

Case #5: Provide paper to draw one animal they have at their home. Graph results.

Case #6: Provide paper to draw an animal and sort according to how they act in the winter: hibernate, hide, migrate, or stay active.

Center Three: Fantasy/Reality

Materials: A variety of fiction and non-fiction picture books that are related (e.g., the three little pigs, a fact book on pigs).

Case #7: Provide a fiction and non-fiction book about the same subject, for example the three little pigs, a fact book on pigs. Gather clues of information from each book. Compare how they are the same and different using a Venn Diagram. Repeat with other sets of books.

Case #8: Pick a fiction and non-fiction book provided about the same subject, for example the three little pigs, a fact book on pigs. Gather clues of information from each book. Cut a circle into as many pieces as you have facts or clues you have found. Write each clue you have gathered on a separate piece of the pie. Color the real facts red, and the fantasy facts blue. Glue them back on the blank circle grouping them by color. Repeat this with one other topic.

Center Four: School Rules

Materials: A copy of your classroom rules. A copy of your district school rules if applicable. Four Pie Graphs per group doing this center, small Post-it® notes.

Case #9: Provide two pies per group. Have one divided into equal parts for the size of your group. Have them write their favorite rule on one of the pieces of pie. Glue their piece on the blank pie grouped with the same rules by each other. Color each section of the same rules together a different color.

Case #10: Provide two pies per group. Have one divided into equal parts for the size of your group. Have them write rules they see followed the most on their piece of pie. Glue their piece on the blank pie grouped with the same rules by each other. Color each section of the same rules together a different color.

Case #11: Provide small sticky notes with a copy of the class rules. Have the students take two small sticky notes to record data on. Have the students write one rule they see each other keeping on one sticky note, and one rule they see broken often on their other sticky note. Graph the results.

Center Five: Numbers

Materials: Provide a worksheet from your math program that has addition and subtraction problems on it. Two pie graphs per group. Two Pie Graphs per group doing this center, small squares cut from different colors.

Case #12: Using the round data table, have them choose a piece of the circle and color it: Blue if their favorite fraction is 1/3. Yellow if their favorite fraction is 1/2. Red if their favorite fraction is 1/4. Glue it back on the empty circle and compare favorites.

Case #13: Using the worksheet from your school math program count out how many times the numbers 5, 6, 7, 8, and 9 were used. Using the same color for one number, glue one square on your graph. For example, if you have seven 5's, glue seven green squares on your graph. Finish gluing to complete graph.

Case #14: Using the worksheet from your school math program count out how many times addition and subtraction were used. Using the same color for addition, and a different color for subtraction, glue one square on your graph for each time they are used. For example, if you have seven addition problems, glue seven squares of one color on your graph. Finish gluing to complete graph.

Center Six: Families

Materials: *Post- it notes®*

Case #15: Take a Post- it notes® and write the number of people in you family. Graph results.

Case #16: Take a Post- it notes® and write the color of eyes you have in your family. One Post- it notes® for each color of eyes represented in your family. Graph results.

Case #17: Take a Post- it notes® and write the number of girls and boys you have in your family. One Post- it notes® for boys, one Post- it notes® for girls. Graph results.

Center Seven: Urban, Suburban, and Rural

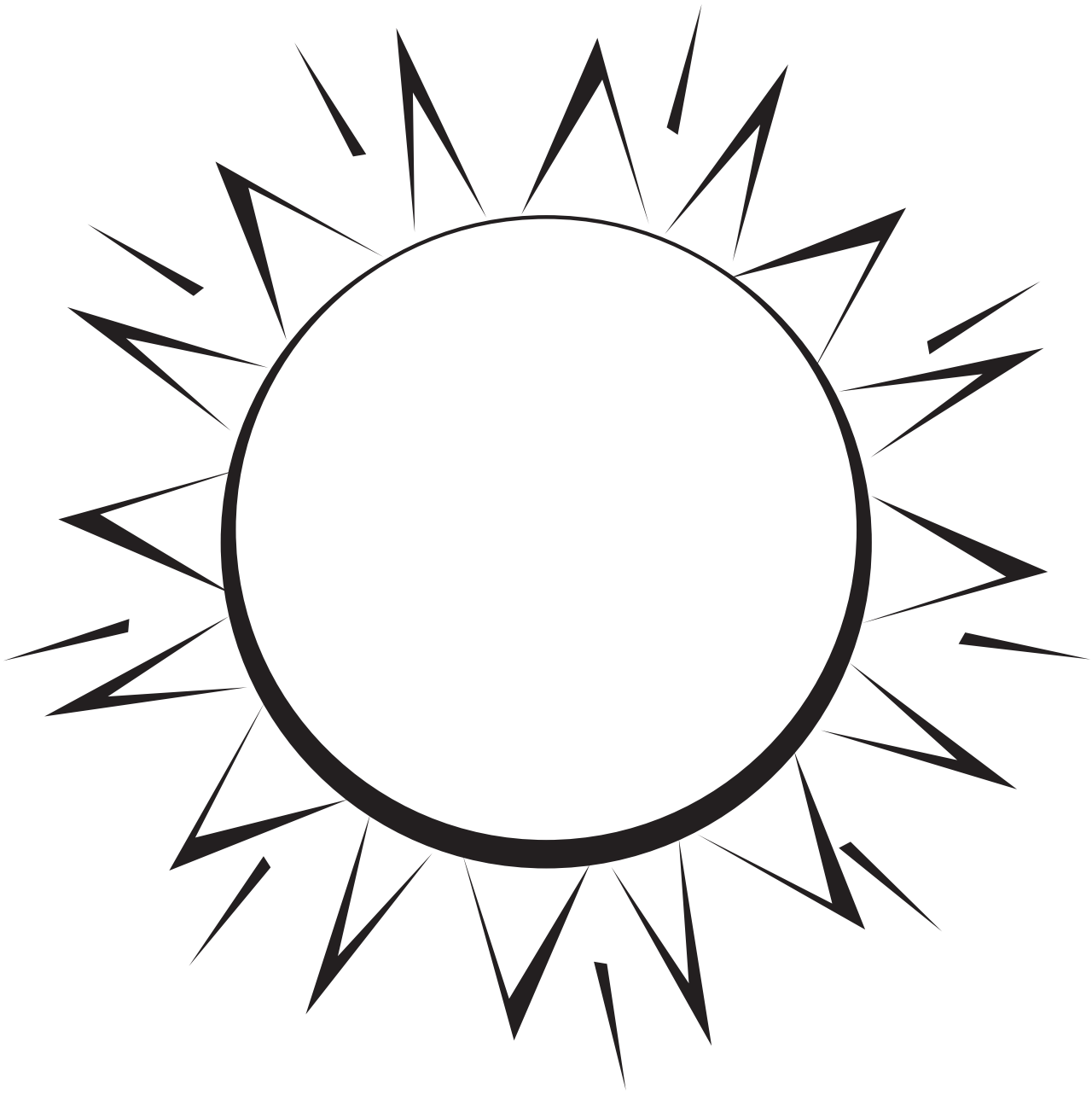
Materials: A variety of pictures, toys, animals, stickers to be sorted into urban, suburban, and rural groups. Lunch sacks labeled urban, suburban, and rural.

Case #18: Using the 3 lunch sacks labeled urban, suburban, and rural, sort objects provided by the teacher according to where you would find them.

Case #19: Sort objects into three groups: urban, suburban, and rural. Draw a Venn Diagram comparing urban and suburban with rural. Have them write how they overlap and what is defiantly different.

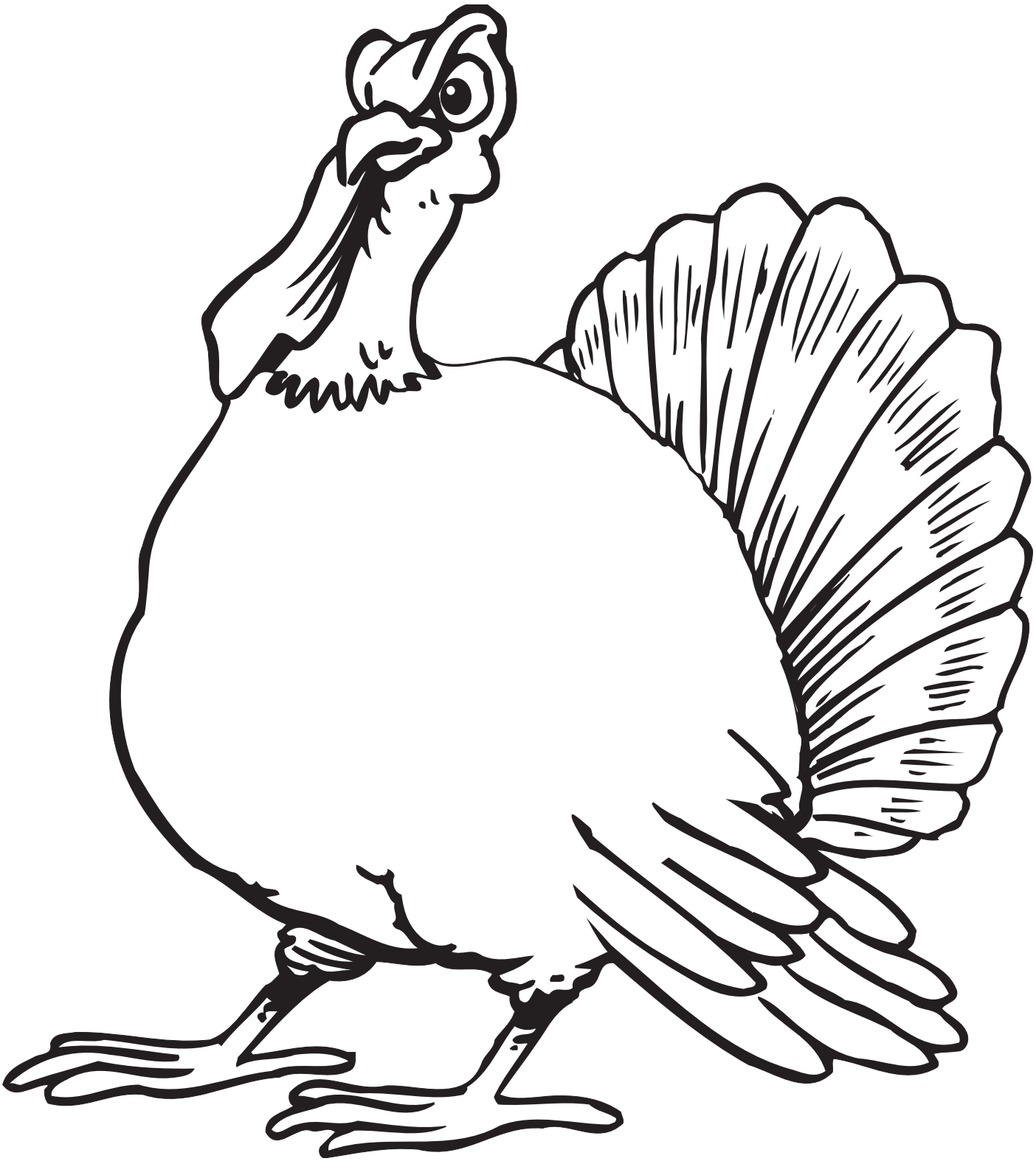
Monthly Integrated Graph

August



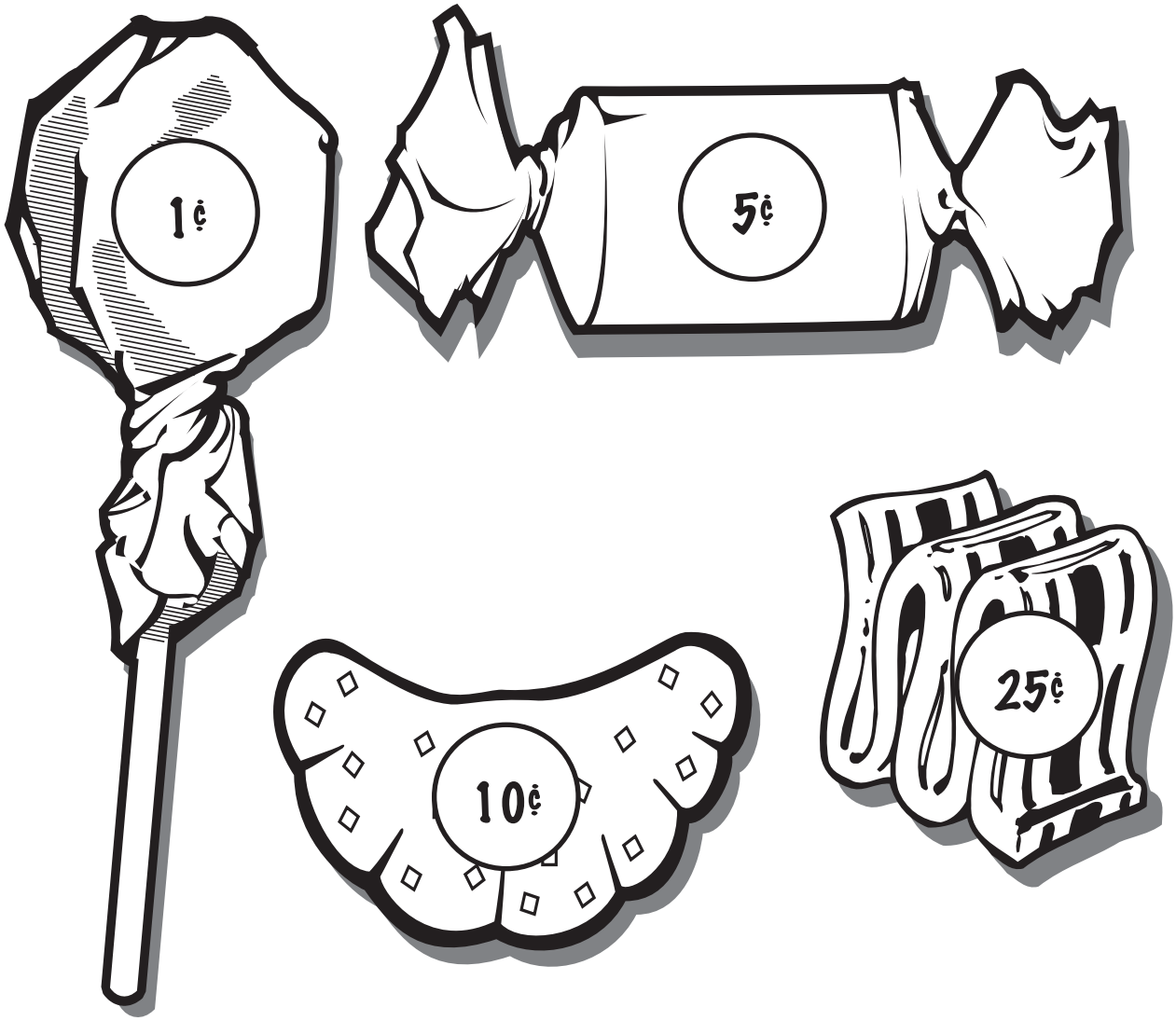
Monthly Integrated Graph

November



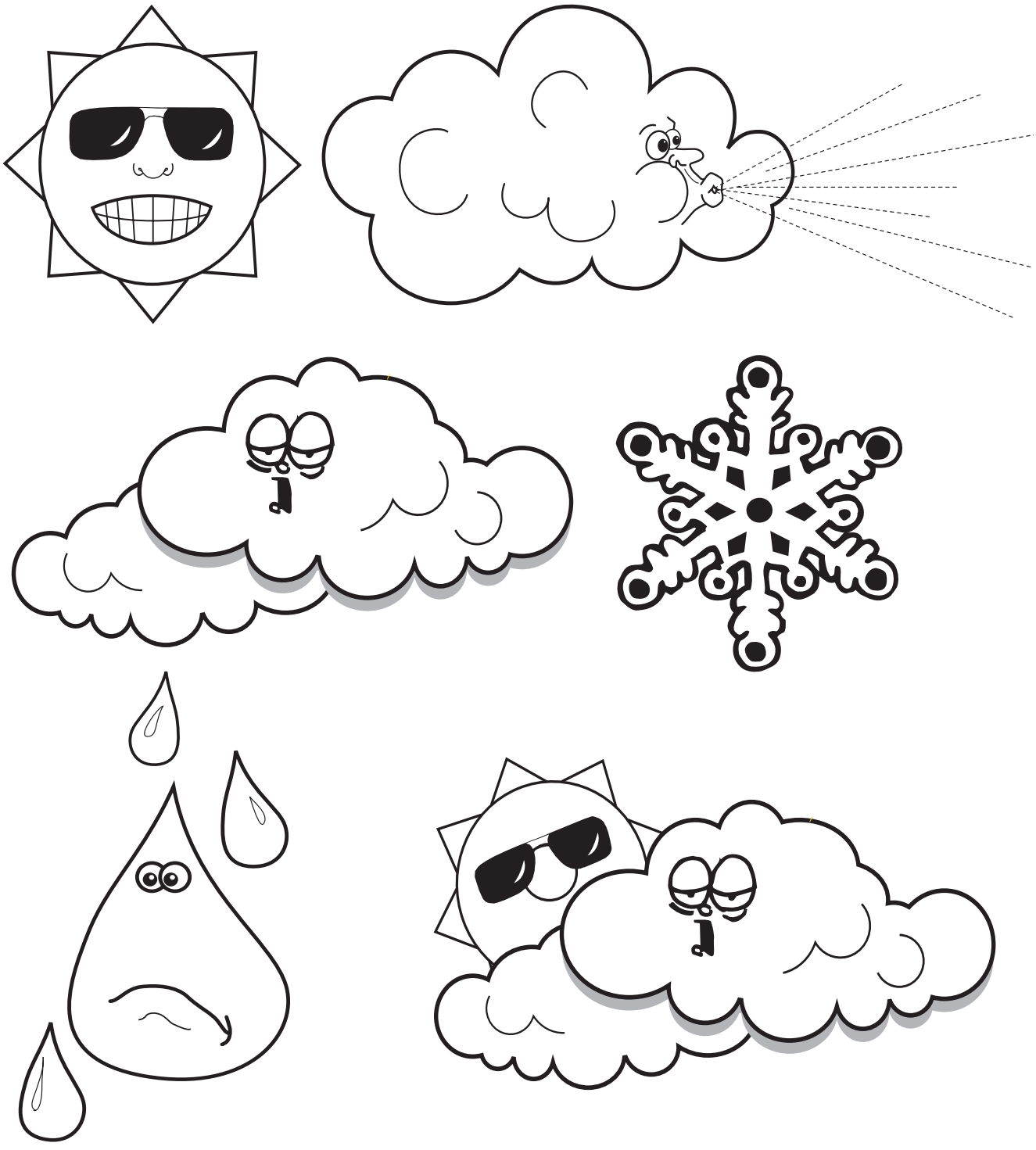
Monthly Integrated Graph

December



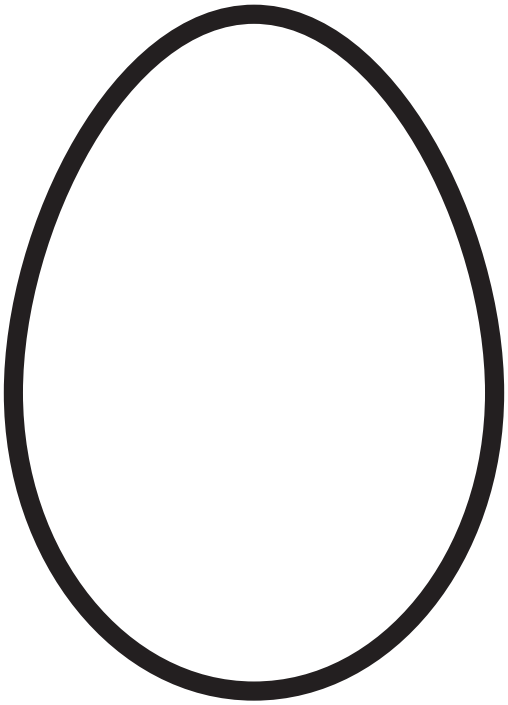
Monthly Integrated Graph

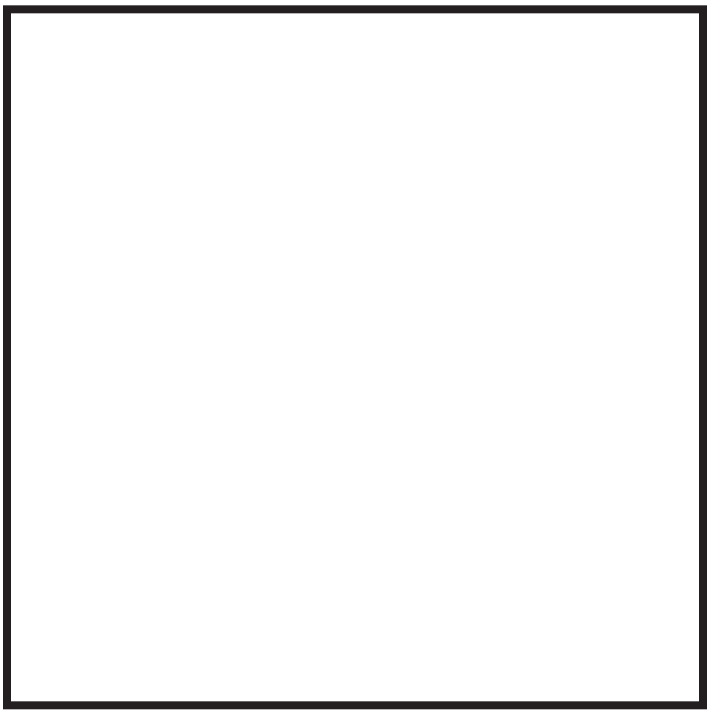
March



Monthly Integrated Graph

April





Content III-1
Activities

Plants & Animals

Plant and Animal Communities

Standard III:

Students will develop an understanding of their environment.

Objective 1:

Investigate relationships between plants and animals and how living things change during their lives.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:

Language Arts, Standard VIII: Writing

Content Standard III

Objective 1

Connections

Background Information:

There are six main classes of the animal kingdom: insects, birds, fish, mammals, amphibians, and reptiles. All animals live in a habitat that is suited to fit their needs. Animals also have adaptations that allow them to survive in their habitat. In addition, plants have adaptations that allow them to live in a specific habitat. All living things depend on plants to survive.

Research Basis

Gallenstein, N. (2005). Engaging young children in science and mathematics. *Journal of elementary science education,* Volume 17.

A key element for children in understanding science and mathematics knowledge on the early childhood level is through active, creative, and intellectual engagement. According to Jerome Bruner, instruction should include a variety of developmentally appropriate techniques. These techniques include the representation of knowledge through actions, drawings, and words. The process skills of observing, communicating, and inferring are also crucial to the understanding and problem solving in science and mathematics. In addition, basic mathematics concepts—such as comparing, sorting, counting, and graphing—are crucial to the understanding and organization of data in science.

Invitation to Learn

Place a picture of an animal on the board facing inward so that the students cannot see it. Make up some riddles and have the students try to guess the animal you are describing.

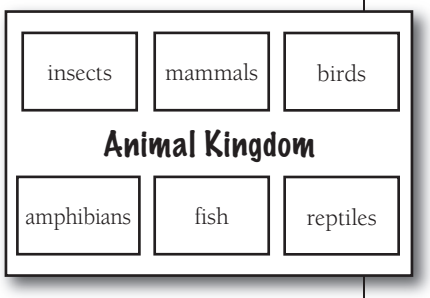
Materials

- ❑ Plastic animals
- ❑ Bucket
- ❑ Sentence strips
- ❑ Marker
- ❑ Animal Kingdom Poster
- ❑ *6 flap book pages*
- ❑ *Animal Kingdom Labels*
- ❑ *Animal Pictures*
- ❑ Baskets / containers
- ❑ 12x18 sheets of construction paper

Which Class do you belong to?

1. Label the six containers with each of the main classes of the animal kingdom (insects, mammals, birds, amphibians, fish, reptiles).
2. Place the plastic animals in the bucket. Ask a student to come up, pick an animal and place it in the appropriate class. If the student places an animal in the incorrect class, just ignore it for now. Later you will correct it.
3. Write the animals that have been placed in each container on the sentence strips. Stick the sentence strips up on the poster. Tell the students that they will be learning more about the animal kingdom.
4. Spend some time discussing facts from each of the six main classes of the animal kingdom using nonfiction literature, videos, etc. As you discuss each kingdom, give each student a copy of the *fFlap Book Page*. Have them write down facts about the animals as you write them on the overhead. Then have them cut out their *Flap Book Page* and fold it.
5. Next, have the students color the *Animal Pictures* and cut them out. Then have the students cut out the *Animal Kingdom Labels* and glue them on the front of each page of their book. Finally, have the students glue the *Animal Pictures* on each appropriate class on the book.
6. Arrange the book pages onto the sheet of construction paper as shown at left. Have the students label their flap book poster with a marker.
7. After making the flap book and discussing each of the six main classes of the animal kingdom, pull out the poster from the beginning of the lesson. Decide if any of the animals need to be moved to a different class.

   These are basic facts from each of the classes that can be written in the flap books.



Insects:

- Have an exoskeleton
- Have three body parts (head, thorax, abdomen)
- Have six legs
- Have two antennae
- Mouthparts

Mammals:

- Usually have fur or hair
- Use lungs to breathe
- Give birth to live young
- Drink milk from the mother
- Mom takes care of her young

Birds:

- Has feathers
- Two legs
- Has wings
- Has lungs
- Lays eggs
- Has a beak instead of a mouth

Amphibians:

- Begin life in the water and move onto land as adults
- Lay eggs in the water and eggs hatch in the water
- Have wet skin
- Begin with gills that then change into lungs
- Grow front and back legs to live on land
- The word amphibian comes from two Greek words. "amphi" means double, and "bios" means "life." Amphibians live a double life.

Examples: frogs, toads, and salamanders

Fish:

- Live their whole life in the water
- Breathe with gills
- Have scales
- Most fish lay eggs, but some give birth to live young
- Have fins to help them move

Reptiles:

- Land animals
- Have dry skin covered with scales
- Use lungs to breathe
- Some young hatch from eggs and some are born alive
- Babies take care of themselves

Examples: Lizards, snakes, alligators, crocodiles, turtles and tortoises. Tortoises live on land and turtles live in the water.

What do plants and animals need?

1. Explain to the students that plants and animals have needs in order to survive.
2. Tell the students that plants need water, sunlight, soil and air (carbon dioxide) to survive. Explain that people and animals give off carbon dioxide when they breathe out. Tell the students that plants make their own food from each of these needs. Do the following experiments with the students.

Materials

- ❑ Green plant
- ❑ Black construction paper
- ❑ Paper clips
- ❑ Petroleum jelly
- ❑ Clear bowl
- ❑ Jar
- ❑ Pond plants
- ❑ Four pennies
- ❑ Water

What happens when a plant doesn't get enough light?

a. Attach a piece of black paper to the top of a leaf using paper clips.
b. Check the leaf each day for one week. Observe and describe what the leaf looks like each day. Have the students record results using words and pictures in a science journal.
c. Discuss what happens when a plant doesn't get the sunlight it needs to survive.

What happens when a plant doesn't get enough carbon dioxide?

a. Cover a few leaves of the plant with petroleum jelly.
b. Check the leaves each day for one week. Observe and describe what is happening to the leaves each day. Have the students record the results in a science journal using pictures and words.
c. Discuss what happens when a plant doesn't get enough carbon dioxide.

3. Animals need food, water, a home, and oxygen to breathe in order to survive. Plants give off oxygen. Land animals get oxygen from the air by breathing with their lungs. Insects get oxygen by breathing through tiny hole in their bodies, and water animals get oxygen from the water. Animals don't make their own food, but they have body parts that help them to get their food. Do the following experiment with the students.

How do animals that live in the water get oxygen?

a. Explain to the students that water plants help to add oxygen to the water.
b. Fill the jar up with water and water plants.
c. Put the bowl on top of the jar and carefully flip it over so that the jar is upside down in the bowl.

d. Pour a few inches of water into the bowl.

e. Slide the four pennies underneath the rim of the jar.

f. Leave the bowl and jar in the sun for a few hours. Oxygen bubbles will start to form on the plants and float to the top of the jar.

4. Make a Venn diagram of plant and animal needs.

Forest and Pond Communities

Materials

- ❏ *Forest Bright Forest Night*
- ❏ *Pond Plants*

1. Explain to students that the forest is a place where many trees and smaller plants grow. Many kinds of animals make their homes in the forest.
2. Read *Forest Bright, Forest Night?* by Jennifer Ward. Talk about some of the different animals and plants that live in a forest and pond. Make a list of the animals.
3. Read *Pond Plants* by Ernestine Giesecke and discuss the plants that live around the pond. Explain that the plants and animals work together to make a community. Plants provide animals with food and shelter, and animals also help plants.

How do plants help animals?

Materials

- ❏ *Animal Homes*
- ❏ *Food Chain Picture Cards*
- ❏ *The Dancing Deer and the Foolish Hunter*

1. Explain to the students that many animals make their homes out of plants. Read *Animal Homes* by Diane James and Sara Lynn to the students. Discuss how animals use plants to make their homes.
2. Explain to the students that another way that plants help animals is by providing food. Many animals eat plants. Animals that only eat plants are called herbivores. Animals that eat plants and other animals are called omnivores, and animals that only eat other animals are called carnivores. However, even though some animals only eat other animals, all animals depend on plants.
3. Tape the *Food Chain Picture Cards* to the board vertically. Put the grass at the bottom, the cricket, the frog next, then the snake, and the hawk last (at the top). Explain that a cricket eats grass, so grass is the beginning of the food chain. The food chain is the path of food from one animal to another. Next, a frog eats the cricket. A snake eats the frog, and finally a hawk eats the snake. What would happen if all of the grass died? Would the hawk be able to stay alive even though he doesn't eat grass?

Sing the following song sung to the tune of "The Farmer in the Dell."

The Food in the Forest

The cricket eats some grass; the cricket eats some grass,
Hi ho the forest-o, the cricket eats some grass.

The frog eats the cricket; the frog eats the cricket,
Hi ho the forest-o, the frog eats the cricket.

The snake eats the frog; the snake eats the frog,
Hi ho the forest-o, the snake eats the frog.

The hawk eats the snake; the hawk eats the snake,
Hi ho the forest-o, the hawk eats the snake.

That's how the food chain works, that's how the food chain works,
Hi ho the forest-o, that's how the food chain works.

Materials

- ❑ *How and Why Seeds Travel*
- ❑ One fresh cut flower
- ❑ Three artificial flowers
- ❑ Cornmeal
- ❑ Container of water
- ❑ Plastic flying insect
- ❑ Piece of fake fur
- ❑ Different kinds of seeds (maple, cherry, apple, sandbur, corn, acorn)
- ❑ Tweezers

4. *Read the Dancing Deer and the Foolish Hunter* to the class. Relate the chain in the story to the food chain that the students just learned about. Discuss what is fantasy and what is real in the story.

How do animals help plants?

1. Explain to the students that animals help plants too. Read the book *How and Why Seeds Travel* by Elaine Pascoe.
2. Discuss the different ways that animals help seeds to travel. Hold up the seeds and ask how an animal would help them to travel. Place the seeds on the piece of fake fur and see if any stick. Ask if these seeds would be spread through droppings, or if they would be spread through fur?
3. Insects drink nectar from flowers. When an insect takes a drink of nectar, it picks up pollen from the flower and carries it from plant to plant helping to make new plants grow.

   Try this experiment:

1. Use a real flower and show the students what pollen looks like.

2. Sprinkle some cornmeal into the center of the artificial flowers.
3. Dip the plastic insect's legs and mouth parts into the water.
4. Show the insect travel from flower to flower picking up "pollen" on its body and spreading it to the other flowers. Explain that this will help new flowers to grow.

Assessment Suggestions

- Check student journals for understanding of the concepts taught.
- Ask students to name two ways that plants help animals, and two ways that animals help plants.
- Ask students to identify characteristics of animals in each of the six kingdoms.

Curriculum Extensions/Adaptations/ Integrations

Read *Frog in a Bog* by John Himmelman. Make a cause and effect chart using the events in the story.

Family Connections

- Have the students observe animal and plant life in their neighborhood.
- Encourage students to teach family members what they have learned.

Additional Resources

Books

Animal Homes, by Sally Hewitt; ISBN 1587288605

Animal Faces in the Forest, by Hannah Kate Sackett; ISBN 1-57768-428-1

Life in a Pond, by Allan Fowler; ISBN 0-516-06053-8

Peek at a Pond, by Neecy Twinem; ISBN 0-448-41953-X

What's in the Pond? by Anne Hunter; ISBN 0-395-91224-5

Pond Plants, by Ernestine Giesecke; ISBN 157572826-5

Who's Who in the Garden? by Vera Rosenberry; ISBN 0-8234-1529-5

Box Turtle at Long Pond, by William T. George; ISBN 0-688-08184-3

Around the Pond: Who's Been Here? by Lindsey George Barrett; ISBN 0-688-14376-8

In the Snow: Who's Been Here? by Lindsay Barrett George; ISBN 0-688-12321-X

Forest Bright, Forest Night, by Jennifer Ward; ISBN 1-58469-066-6
Animal Homes, by Diane James and Sara Lynn; ISBN 0-590-20585-4
Finding a Friend in the Forest, by Dean Bennett; ISBN 0-89272-662-8
Frog in a Bog, by John Himmelman; ISBN 1-57091-518-0
Plants that Eat Animals, by Allan Fowler; ISBN 0-516-27309-4
Animal Babies Series:
Reptiles, by Rod Theodorou; ISBN 157572884-2
Mammals, by Rod Theodorou; ISBN 1575728834
Insects, by Rod Theodorou; ISBN 157572-880-X
Fish, by Rod Theodorou; ISBN 157572882-6
Birds, by Rod Theodorou; ISBN 1575728818
Amphibians, by Rod Theodorou; ISBN 1575729504
How and Why Seeds Travel, by Elaine Pascoe; ISBN 1574716581
A Walk in the Woods, by Caroline Arnold; ISBN 0382246500
The Dancing Deer and the Foolish Hunter, by Elisa Kleven; ISBN 0525468323

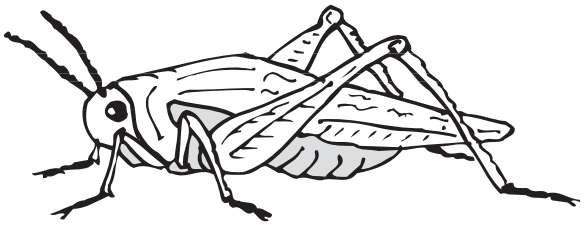
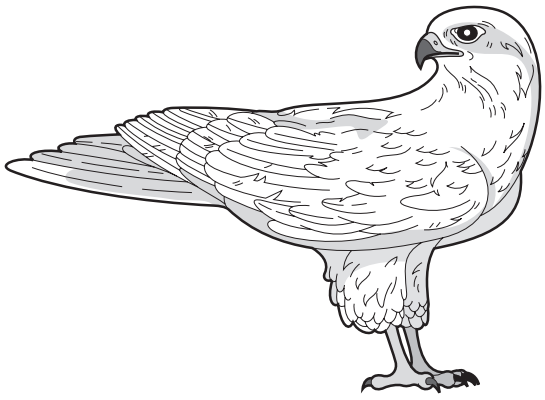
Flap Book Page

Animal Kingdom Labels

Insects	Fish
Birds	Reptiles
Mammals	Amphibians

Animal Pictures

Food Chain Picture Cards

Grass 	**Cricket** 
Frog 	**Snake** 
Hawk 	

Plant and Animal Changes

Standard III:

Students will develop an understanding of their environment.

Objective 1:

Investigate relationships between plants and animals and how living things change during their lives.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:

Language Arts, I-2; Develop language

Content Standard III

Objective 1

Connections

Background Information

Many changes occur among plants and animals during the seasons. Some animals hibernate for the winter, some migrate, and some stay active.

Research Basis

Jiyoon, Y., & Onchwari, J. A. (2006) Teaching young children science: Three key points. *Early childhood education journal,* Volume 33.6, pp. 419-423.

Science education should be described as "doing" instead of just memorization of facts. For science to be successfully taught, knowledge of child development, individual differences, and sociocultural context, must be intertwined to develop a developmentally appropriate learning experience. Using the instructional model of the five "Es" (engaging, exploring, explaining, elaborating, and evaluating) will result higher level thinking skills and increased performance.

Invitation to Learn

Ask students what they do when it gets really cold outside. Tell students that animals and plants must prepare for winter also, but in different ways then we do.

Instructional Procedures

1. Read *What Do Animals Do In Winter?* by Melvin and Gilda Berger. Discuss that during the winter, some animals travel or migrate, some hibernate, some hide, some change color, and some make changes to their bodies like growing extra fur.

Materials

- ❑ *What Do Animals Do In Winter?*
- ❑ Glue
- ❑ Two soup cans
- ❑ A piece of cotton batting
- ❑ Two thermometers
- ❑ Classroom clock
- ❑ *How Does Fur Help Animals?*

2. Discuss migration. Some animals migrate to find food or water. Others migrate because they are looking for safe places to raise a family. Other animals migrate to escape the cold. List the animals that migrate (birds, monarch butterflies, reindeer, whales, etc.).
3. Discuss hibernation. Animals hibernate when food is hard to find. Some animals are deep sleepers, and some animals are light sleepers. Dormice, ground squirrels, and groundhogs are three deep sleepers. They don't wake up at all. In fact, they look dead when they are hibernating! Turtles and frogs bury themselves in mud to hibernate.
4. Some animals make adaptations to survive during the winter. They can't put coats on like we do. For example, a fox grows extra fur. The following experiment will show how fur helps animals to stay warm.

   How does fur help animals?

   a. Glue the cotton batting around one of the soup cans. The cotton batting will represent fur. Wait for the glue to dry.
   b. Fill both cans with hot water. The can with cotton batting represents fur.
   c. Place a thermometer in both cans and record the temperature of the water on the *How Does Fur Help Animals?* recording sheet. Record the temperature in the cans every 10 minutes for 30 minutes. What did you discover?

Apple Tree Community

Materials

- ❑ *AppleTree Community Book*
- ❑ *Apple tree animals*
- ❑ Crayons
- ❑ Scissors
- ❑ Glue
- ❑ Stapler
- ❑ Construction paper

1. Prior to the lesson, copy an *Apple Tree Community* book for each child on heavy paper or cardstock. Fold and staple the books.
2. Explain to the students that plants change with the seasons as well as animals.
3. Read the black line of the *Apple Tree Community* to the students. Discuss ways that the apple tree helps the animals, and the animals help the apple tree. Tell the students that they will get to make their own book.
4. Pass out the *Apple Tree Community* book to each student. Read and discuss page one and two together as a class.
5. On page three of the book, have the students color the bare tree trunk. Then have them decorate the tree with small, ripped pieces of pink paper or tissue paper. Next, have them color, cut out, and glue the *apple tree animals* for page three onto the tree. You will need to leave the book open until these pages dry.

7. Read page four together as class. Then on page five, have the students color the trunk, and decorate the tree with ripped pieces of green paper or green tissue paper. Finally, have the students color, cut out, and glue the *apple tree animals* for page 5 on the appropriate parts of the tree indicated by the words of the story. Page four and five will need to be left open until the glue dries.

10. Read page six together as a class. Then have the students color the trunk and decorate the tree with ripped pieces of green and yellow paper for the leaves. The apples are ripe at this time. Have the students use red pompoms or red circles to show the ripe apples. Then have the students color, cut out, and glue the apple tree animals on the appropriate places of the tree. Again, wait for these pages to dry before moving on.

11. Read page eight together as a class. On page nine, have the students color the trunk, and glue a few ripped pieces of yellow and orange paper on the tree to represent the leaves. Also tell them that they will want to put a lot of leaves on the ground. Have the students put a few apples on the tree and also some on the ground. Cut out the squirrels on the apple tree animals page for page nine. Have them glue the squirrels onto the page. Wait for the glue to dry, and then have the students read and share their books.

Assessment Suggestions:

- Ask the students what animals do when winter comes.
- Have the students name three animals that depend on the apple tree for survival, and name how the animals depend on the apple tree.

Curriculum Extensions/Adaptations/ Integration

- Continue to discuss animal adaptations.
- Have the students write animal reports.

Additonal Resources

Books

Winter Lullaby, by Barbara Seuling; ISBN 0-15-201403-9

Animal Migration, by Janet McDonnell; ISBN 1-56766-402-4

How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

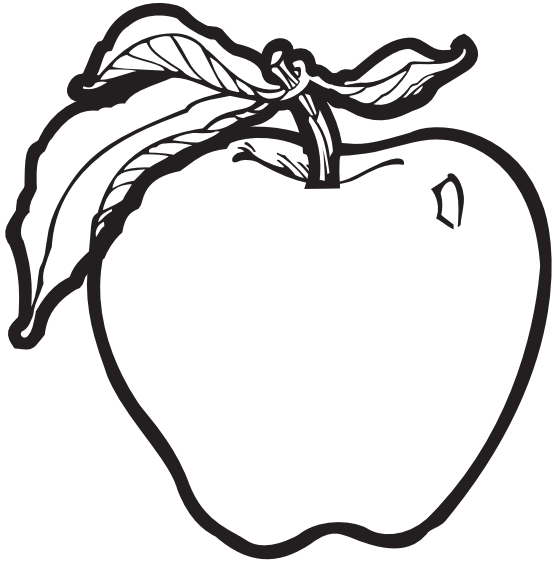
How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

The Apple Tree Community



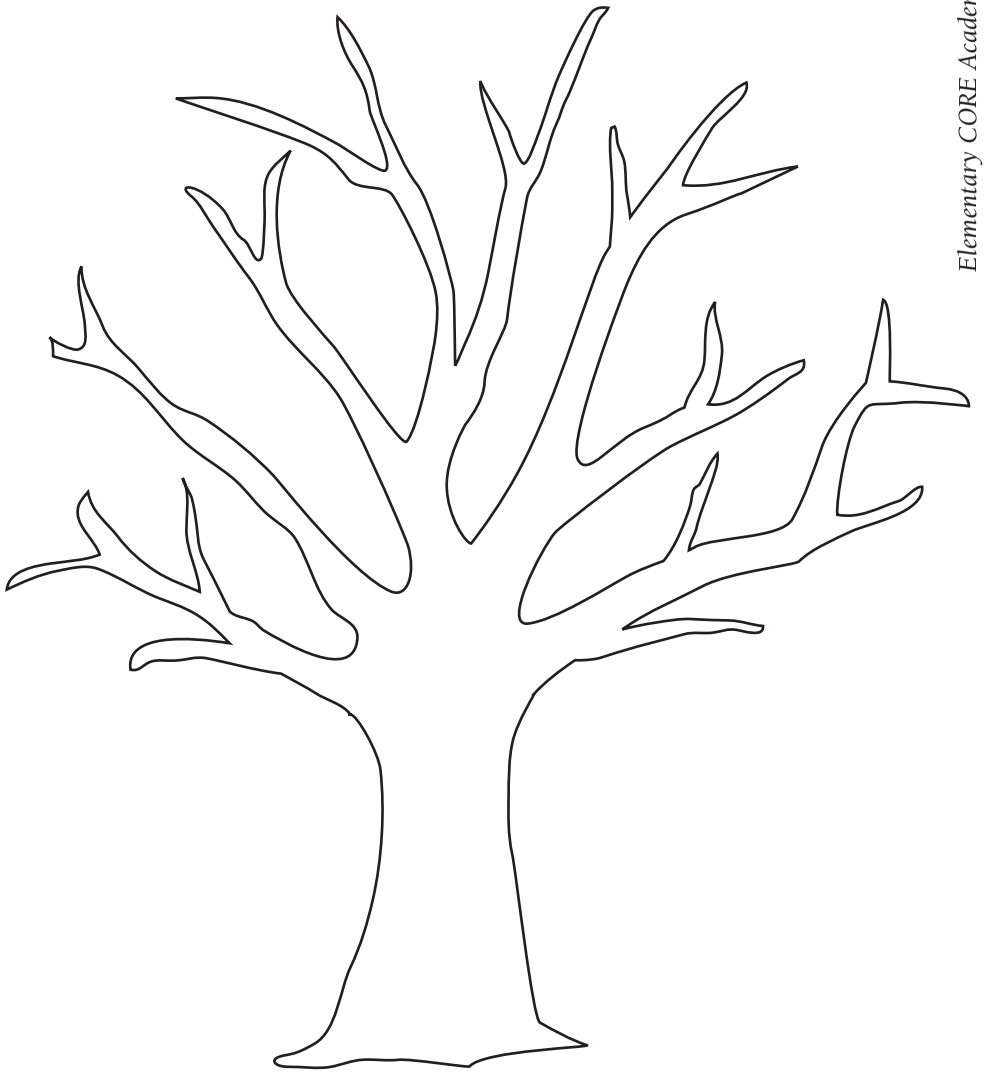
Name _____

In late fall, almost all of the apples are gone. Squirrels collect apples from the ground to hide and eat during the winter. All of the animals that eat the apples will help to scatter the seeds through their droppings. This helps other apple trees to grow. New apple trees will provide food and homes for more animals.

Have you ever thought of an apple tree as a community? Well, it is!

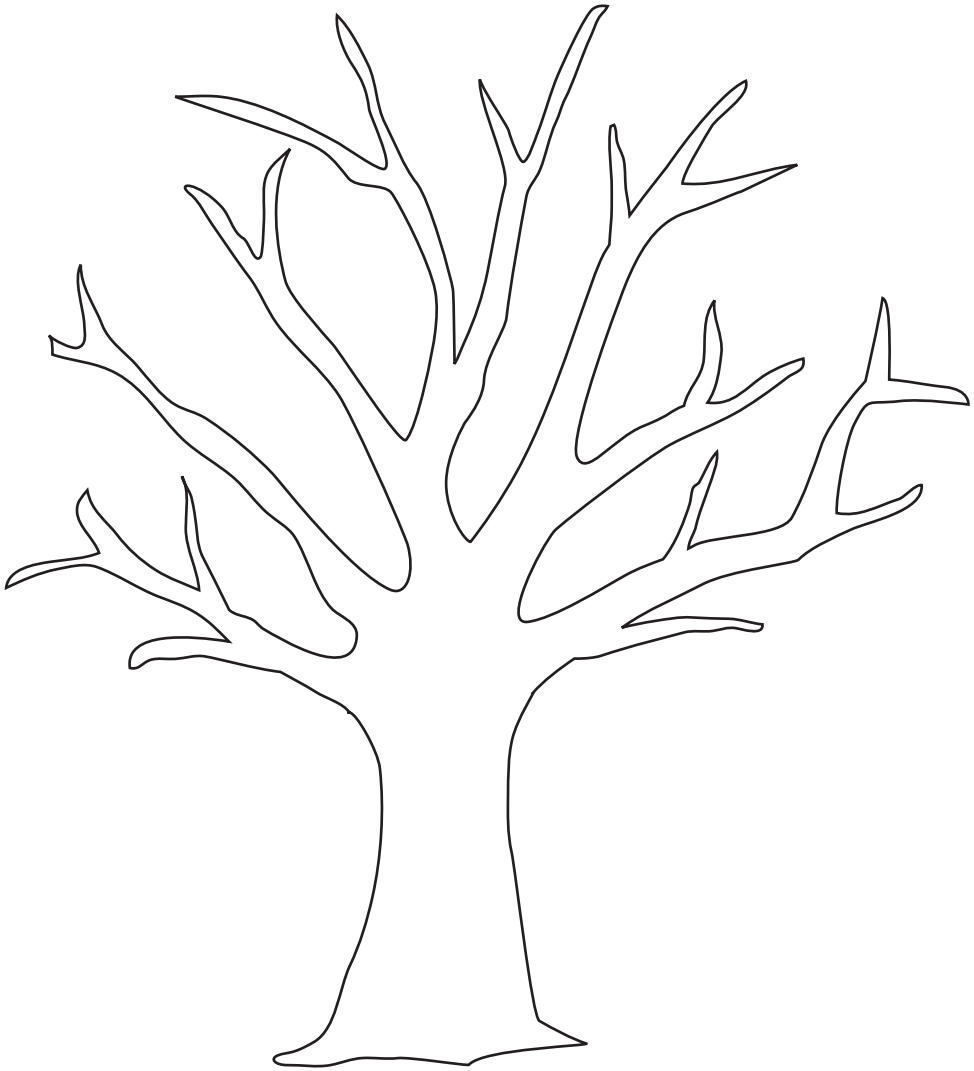
Insects, birds, and other animals make their homes and find food in the apple tree. The apple tree helps the animals and the animals help the tree. They help each other.

In the spring the apple tree is covered with blossoms. Insects drinknectar from the blossoms. As the insects drink nectar, pollen sticks to their bodies and is spread from blossom to blossom. This helps the tree to make apples.



In early fall, the apples are ripe. Birds, insects, deer, squirrels and other animals come to eat the apples.

The animals are getting ready for winter by eating lots. There won't be much food when the weather turns cold.



In the summer the apple tree's leaves are green and apples are startomg to grow. Many animals make their homes in or around the tree.

A **mouse** makes a nest by the tree's roots.

Hornets build a nest in the branches.

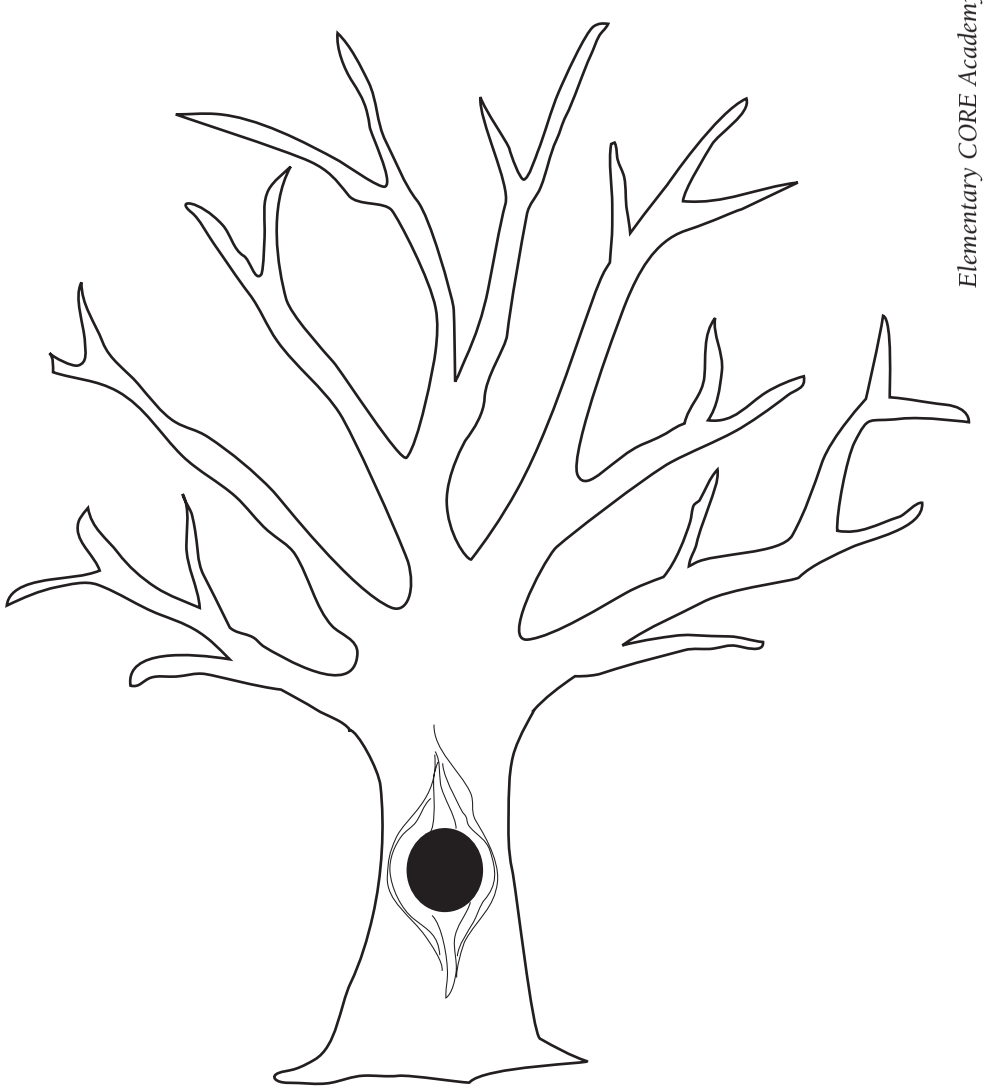
Birds make nests ourt of sticks in the branches and come to eat insects in the tree.

A **woodpecker** makes a hole in the trunk to live in.

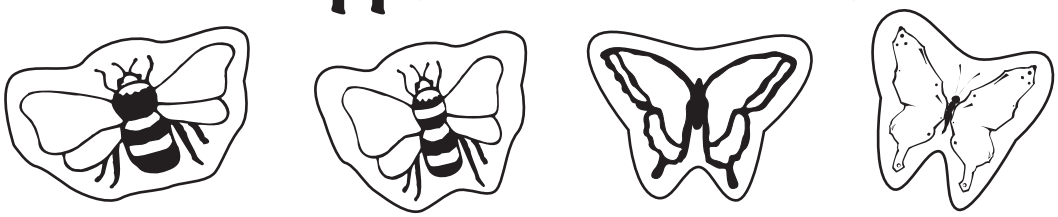
A **moth** lays her eggs on a leaf.

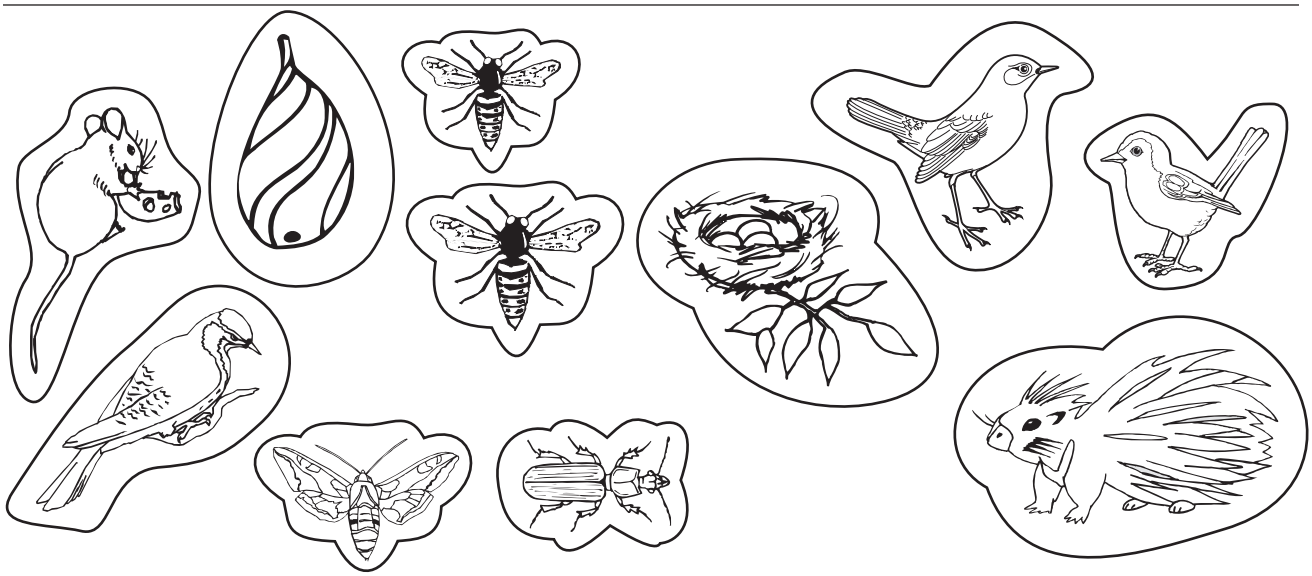
Beetles lay eggs on the bark.

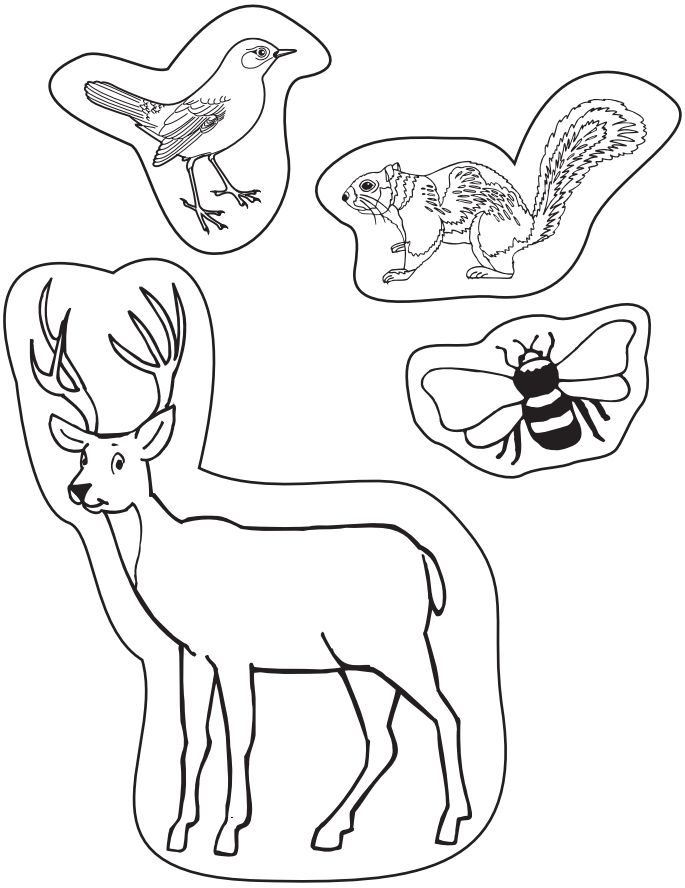
A **porcupine** eats the bark.

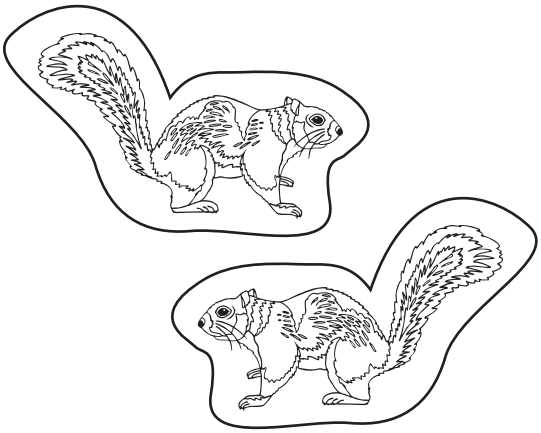


Apple Tree Animals









Content I-1
Activities

Diet & Safety

Food Foldable

Standard I:
Students will develop a sense of self.

Objective 1:
Describe and adopt behaviors for health and safety.

Intended Learning Outcomes:
4. Develop physical skills and personal hygiene.

Content Connections:
Language Arts VI-1; Learn new words

Content Standard I

Objective 1

Connections

Background Information

According to the new food guide pyramid, the five food groups are: grains, vegetables, fruits, meat & beans, and milk. Oils are not a food group, but people need some oils for good health. When students eat a balanced diet they will eat from all of the food groups every day. Students should eat more from some groups than others. Within each food group there are foods that should be eaten more often than others.

A person's diet is what they usually eat. Some children may think that a diet is only something you "go on" to loose weight. A calorie is a unit used to measure the amount of energy in food. A calorie is also called a kilocalorie. We use the energy in calories during our daily activities and when we exercise. Food provides our bodies with nutrients.

Students should have a basic understanding of the new food guide pyramid and how it can help us make healthy choices.

Research Basis

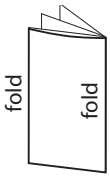
Barton, M.L., & Jordan, D.J. (2001). *Teaching reading in science: Asupplement to teaching reading in the content areas teacher's manual* (2nd Edition). Retrieved November 27, 2006, from http://www.eric.ed.gov.

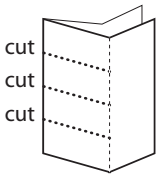
The Frayer model is a strategy used to teach vocabulary. There are two versions used to teach the Frayer model. In one model the students learn examples and non-examples, definitions, and characteristics. In the second model students also learn examples and non-examples, to this they add essential characteristics and nonessential characteristics.

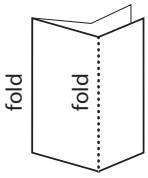
Monroe, E.E., & Pendergrass, M.R. (1997). Effects of mathematical vocabulary instruction on fourth grade students. *Reading Improvement,* 34(3), 2-24.

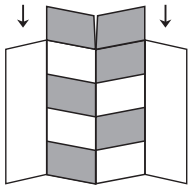
Materials

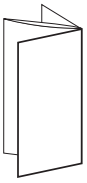
- ❑ *Food Foldable Inserts*
- ❑ *Food Foldable*
- ❑ Food Model Cards
- ❑ Styrofoam plates (preferably with five serving areas)
- ❑ *Guess Your Food Group*
- ❑ *Nutrition Song*











This study compares the use of integrated graphic organizers that utilize the Frayer model and a definition only model. The results show a greater number of mathematical concepts recorded by the group using the integrated graphic organizers. The Frayer model is an effective method for teaching.

Invitation to Learn

Read the poem *Balanced Diet* found in the book *Miles of Smiles.*

Instructional Procedures

1. Cut out the *Food Foldable Inserts.*
2. Fold the *Food Foldable* in half and cut on the dotted lines.
3. Unfold the *Food Foldable* and weave the inserts through the openings. Make sure you can see the words Healthy Vocabulary on one side.
4. Teach the children the words on the Healthy Vocabulary side of the *Food Foldable*.
5. Have students complete the inside of each word's section. There are directions inside the *Food Foldable* for each word.
6. Turn to the Food Group's side of the *Food Foldable*. Give each student two food model cards.
7. Read the words next to the grains section on the top row of the *Food Foldable.*
8. Ask students to look at their food model cards and hold up any food model cards that belong in the grain group.
9. Attach the cards where everyone can see them.
10. Repeat this process for the other food groups. Students will have some cards left that do not belong in any of the food groups. Explain to students that we should only eat these foods once in a while. These foods are not in a food group.
11. Have students complete the inside of each food group section by drawing at least one example and one non-example.
12. Use the *Food Foldable* as a study guide.

Assessment Suggestions

- Put the food model cards on a table. Give each child a paper plate (styrofoam plates with five serving areas work best). Have

each student walk along the table as if in a cafeteria and select food items to create a balanced meal.

- Guess Your Food Group
  1. Divide the students into groups of five.
  2. Give each child in the group one *Guess Your Food Group* card.
  3. Signal the students to place their *Guess Your Food Group* cards on their foreheads and stand up.
  4. Students should look at the cards on their team-members' heads without talking. The students should use deductive logic to guess their food group.
  5. Once the students know their food group, they may sit down while the other students guess.
  6. Each team member must state their guess before anyone looks at their cards.

Curriculum Extensions/Adaptations/ Integration

- Sing the "Nutrition Song".
- Investigate foods from other cultures.
- Discuss ways to handle and store food safely.
- Research the agricultural production of foods and the process involved in growing, processing, and transporting the food. Help children understand that food does not come from the grocery store.

Family Connections

- Ask families to keep a dinner diary and list what they eat. Ask students to work together with their families to improve their diet.
- Use the food guide pyramid to help create a healthy grocery list.

Additional Resources

Books

Good Enough to Eat: A Kid's Guide to Food & Nutrition, by Lizzy Rockwell; ISBN 0060274352

Food Safety, by Sharon Gordon; ISBN 0516259881

Miles of Smiles, p. 52, by Bruce Lansky; ISBN 0439082110

Web sites

http://mypyramid.gov/

http://www.agclassroom.org/ut (Food Model Cards can be purchased at this site.)

http://www.hearthighway.org

http://www.nutritionexplorations.org/

Food Foldable Inserts

cut

HEALTHY

Non-Examples:

calories

Non-Examples:

oils

cut

Examples:

The usual foods and drinks a person or animal eats

Examples:

Parts of food that your body uses to do its work

Examples:

cut

cut

Roots, leaves, stems, flowers, or pods that are used as food

GRAINS

draw yourself doing two activities that burn calories.

FRUITS

Food made from milk, sometimes called dairy foods

Mineral Vitamins Proteins

Answer _____ nutrients

Draw four foods that have alot of oil.

MEAT AND BEANS

Food Foldable

cut

VOCABULARY

cut

Draw four foods that are in your diet.

cut

diet

cut

energy found in food

cut

Count the types of nutrients:

Carbohydrates Fat Water

cut

How many types of nutrients are there?

cut

fat found in some foods

cut

nutrients

fold

Name _____

Food Groups

Foods made from the seeds of wheat, corn, rice, or other cereal plants

cut

Examples:

cut

Part of a flowering plant that contains seeds

cut

Examples:

cut

Part of an animal that can be eaten as food or beans from a plant

fold

Non-Examples:

cut

VEGETABLES

cut

Non-Examples:

cut

MILK

cut

Non-Examples:

Food Foldable

Guess Your Food Group

Guess Your Food Group	
Guess Your Food Group	Guess Your Food Group
Guess Your Food Group	Guess Your Food Group

Guess Your Food Group

	Grains
Vegetables	Fruits
Meat and Beans	Milk

Nutrition Song

By: Holly Fjeldsted

I don't know but I've been told
Treat your body just like gold.
Nutrients are what we need
To keep our bodies up to speed.

The food guide pyramid is the key
To stay as healthy as can be.
Grains, Fruits, Veggies, Milk and Meat
Help to make a body complete.

Exercise twenty minutes each day
Healthy your heart will ever stay.
Drinking and smoking isn't that smart
You've got to say "No!" and do your part.

Sound off!
One, Two!
A little more!
Three, Four!

Keep your body healthy forever more!

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By: Holly Fjeldsted

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One, Two!
A little more!
Three, Four!

Keep your body healthy forever more!

Burning Calories

Content Standard I

Objective 1

Standard I:
Students will develop a sense of self.

Objective 1:
Describe and adopt behaviors for health and safety.

Intended Learning Outcomes:
4. Develop physical skills and personal hygiene.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Math III-2, Use Measurements

Connections

Background Information

In addition to making healthy food choices, the new food guide pyramid reminds us to be physically active every day. Students will need background knowledge regarding how to make a prediction in order to complete this activity. They should also know what a calorie is. Make sure that students understand that when we talk about burning calories we are not talking about fire, we are talking about our bodies using the calories as a form of energy.

Students will need to walk during this activity. Students with physical limitations or food allergies may need accommodations to complete this activity. The lesson requires students to walk three different distances. They will need a hallway or outside area with space to walk. The distance walked does not need to be a straight line.

Research Basis

Bell, R., (1990). Whole-Class Inquiry: Science. *Learning and Leading with Technology,* 32(8), 45-47.

This article discusses three comparable lessons: (1) a traditional textbook-based lesson; (2) an example of the same lesson taught in a computer laboratory setting using a hands-on approach; and (3) scaffolding provided to facilitate inquiry in a whole-class setting.

Jarrett, D., (1997). Inquiry Strategies for Science and Mathematics Learning: It's Just Good Teaching. Northwest Regional Education Laboratory. Retrieved November 30, 2006, from http://www.eric.ed.gov.

Inquiry-based learning satisfies the natural curiosity children possess. Students who are learning through inquiry are actively involved in the learning process. Teachers may begin to create an environment that supports inquiry by using appropriate questioning,

having children collect data, and engaging children in activities that lead to discovery.

Invitation to Learn

Ask the children how many steps they think a second grader would have to walk to burn the calories contained in one regular-sized package of M&M candies. Hold up the package of M&M candies. Tell students to write their answers on their Post-it® notes and attach it to the *Crystal Ball* poster.

Instructional Procedures

1. Hand out *Predictions*.
2. Give each student one carrot slice and instruct them to eat the carrot slice.
3. Now have the students predict how many steps they will have to walk to burn the calories they just ate. Have the children write their prediction in *Crystal Ball #1*.
4. Tell the students that in order to burn the calories in the carrot slice we will have to walk.
5. Take the children to a hallway or an open area and walk. Have the children help you count the steps using a pedometer. Stop when you get to 57 steps. Tell the students that we have just burned the half of a calorie that was in the carrot slice.
6. When you get back to class have the children write in the correct answer.
7. Give each student one Froot Loop and instruct them to eat the Froot Loop.
8. Now have the students predict how many steps they will have to walk to burn the calories they just ate. Have the children write their prediction in *Crystal Ball #2*.
9. Tell the students that in order to burn the calories in the Froot Loop we will have to walk.
10. Take the children to a hallway or an open area and walk. Have the children help you count the steps using a pedometer. Stop when you get to 114 steps. Tell the students that we have just burned the single calorie that was in the Froot Loop.
11. When you get back to class have the children write in the correct answer.

Materials

- ❑ *Crystal Ball* (poster size)
- ❑ M&M candies
- ❑ Post-it® Notes
- ❑ *Predictions*
- ❑ Pedometers
- ❑ Slice of a raw baby carrot
- ❑ Froot Loops
- ❑ Journals

12. Give each student one M&M candy and instruct them to eat the M&M candy.
13. Now have the students predict how many steps they will have to walk to burn the calories they just ate. Have the children write their prediction in *Crystal Ball #3*.
14. Tell the students that in order to burn calories in the M&M candy we will have to walk.
15. Take the children to a hallway or an open area and walk. Have the children help you count the steps using a pedometer. Stop when you get to 342 steps. Tell the students that we have just burned the three calories that were in the M&M candy.
16. When you get back to class have the children write in the correct answer.
17. Ask probing questions regarding the conclusions children can make from this activity.
18. Help the children conclude that:

    Foods have different levels of calories.

    We need to be careful about the foods we consume.

    The more high-calorie foods we eat, the more calories we need to burn to stay healthy.
19. Have the children write at least one conclusion in a journal that they made in the process of this activity.
20. Finally, to burn the calories in a whole package of M&M candies a second grader would have to walk 26,904 steps.

Assessment Suggestions

- Show students two portion cards (one should be a high-calorie food and one should be a low-calorie food). Ask students to identify the food with the greatest or least amount of calories.
- Complete *Calories Count*.

Curriculum Extensions/Adaptations/Integration

- Explain to students that within each food group the number of calories per serving fluctuates. Eating one cup of apples has far fewer calories than eating one cup of strawberries.
- Advanced learners may compare calories of the fast food items they eat at the Kid's Nutrition web site.

- Students may look at a variety of menus from restaurants and make comparisons. They could also practice selecting healthy foods from restaurant menus.
- Place different foods on a piece of construction paper. Make sure to include some high fat foods such as potato chips. Observe the transfer of fat to the paper.

Family Connections

- With the help of an adult, students can find out what their favorite foods are composed of using the USDA website.
- Students could organize physical activities for their family members to do together.

Additional Resources

Books

The Lunch Line, by Karen Berman Nagel; ISBN 0590602462

WHY? by Lila Prap; ISBN 1929132808

Articles

Kids Discover, Kids Discover; ISSN 1054-2868

Web sites

http://www.kidsnutrition.org/consumer/nyc/vol1_03/energy_calculator.htm

http://www.nal.usda.gov/fnic/foodcomp/search/

http://www.pecentral.org

http://news.ucanr.org/mediakits/Nutrition/nutritionfactsheet.shtml

Crystal Ball

Name _____

Predictions

1. Answer:

_____ steps

2. Answer:

_____ steps

3. Answer:

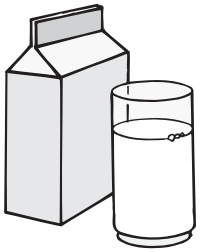
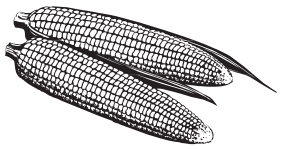
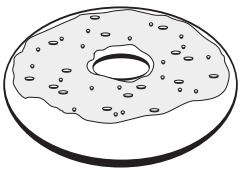
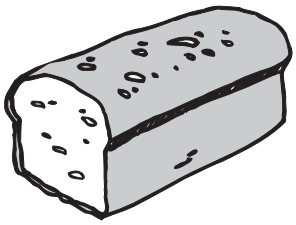
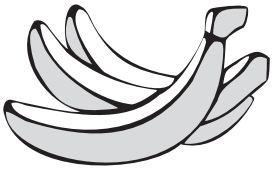
_____ steps

Name _____

Calories Count

Cut out the 8 foods at the bottom of the page. Glue the kinds of foods we can eat every day in the low calorie box. Glue the kinds of foods we should only eat once in a while in the high calorie box.

Low Calorie Foods		High Calorie Foods	

Safety Safari

Standard I:
Students will develop a sense of self.

Objective 1:
Describe and adopt behaviors for health and safety.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude
5. Develop social skills and ethical responsibility.

Content Connections:
Language Arts VII-2; Comprehend text

Content Standard I

Objective 1

Connections

Background Information

According to the Safe Kids Worldwide Organization the leading causes of accidental injury-related deaths (for children ages 0-14) are: motor vehicle occupant 29%, airway obstruction 17%, drowning 16%, pedestrian 11%, fire and burns 10%, other causes 10%, bicycle 2%, poisoning 2%, falls 2%, and firearm 1%.

Students with limited reading skills should be paired with a partner who will be willing to help with the reading. Students will need to understand the meaning of the words: correct and incorrect. Students should recognize that they are using their background knowledge to answer the questions on the *Anticipation Guide*. They should answer to the best of their ability and are not expected to know all of the answers at the beginning of the lesson.

Students who may be tempted to change their first answer if it was incorrect could be asked to color over their answer with a yellow crayon to prevent erasing the first answer.

Research Basis

Duffelmeyer, F.A. & Baum, D.D. (1992). The Extended Anticipation Guide Revisited, *Journal of Reading,* 35(8), 654-56.

This article discusses flaws found in teacher generated anticipation guides. Suggestions for effective anticipation guide creation are offered. The revisited anticipation guides require students to write or tell why their answer was correct or incorrect.

Polette, K. (2005). *Read & Write It Out Loud!* Boston: Pearson Education.

This book focuses on effective ways to teach students to become oral readers. One of the main literacy practices discussed and demonstrated in the book is the use of anticipation guides. Using

anticipation guides helps teachers understand the background knowledge each child possesses regarding the topic. It also helps the students know what information they should be searching for.

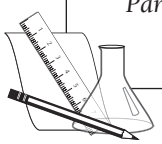
Invitation to Learn

Listen to the song "Buckle Up!" From the *Take a Stand* CD.

Instructional Procedures

Materials

- ❑ *Take A Stand*
- ❑ *Anticipation Guide*
- ❑ Clipboard
- ❑ Empty toilet paper rolls
- ❑ 36 inch piece of yarn
- ❑ Tape
- ❑ *Safety Safari Signs*
- ❑ *Dinosaurs, Beware! A Safety Guide*
- ❑ *Water Safety Anticipation Guide for Parents*



1. Set up the Safety Safari by randomly placing the *Safety Safari Signs* around the classroom. The signs should be placed at a level where the children can read them. The *Safety Safari Signs* each show one safari animal and give safety information.
2. Have students complete the *Anticipation Guide* by circling yes or no for each question. Tell the students to look for the *. We are only answering yes or no at this point. We will write in the other boxes later.
3. Make binoculars by taping the two empty rolls of toilet paper together and attach a string to either side.
4. Tell students to put the binoculars around their necks so they will be ready to go on a Safety Safari.
5. Assign students a partner. Give each student a clipboard.
6. Students should use their binoculars to find all 12 animals in the classroom.
7. After finding each animal they should read what the animal tells them about safety.
8. Then they should circle the corresponding answer on their *Anticipation Guide*. To find the correct section on the *Anticipation Guide* they should look for the animal graphic on the sign and then find the same animal graphic on the *Anticipation Guide*.
9. Next students should write a sentence that tells why their answer was correct or incorrect.
10. If students find all of the animals they will know the answers to all of the questions.
11. Read the book *Dinosaurs, Beware! A Safety Guide* to the class.
12. Help the children make connections from the *Dinosaurs, Beware! A Safety Guide* text to the Safety Safari Activity.

Assessment Suggestions

- Go on a Safety Safari in your school. Have the children take binoculars and search for safety items in the classroom, hallway, playground, bus loading area, parking lot etc. Students may find exit signs, fire extinguishers, fire alarms, door locks, street signs, markings on sidewalks, etc.
- Students may draw pictures that show safari animals doing one thing that is not safe. Then students should write what is not safe about their picture on the back of the page. The pages could then be made into a classroom book called *Spying Safari Safety*. The students can use the book to identify where safety is needed.

Curriculum Extensions/Adaptations/ Integration

- Students with limited reading abilities should be partnered with another child who can be of assistance.
- Focus on rules for playground safety. Discuss how we do not tie anything around our necks, we look before we jump, we don't climb up slides, we stay away from people who are swinging, etc.

Family Connections

- Students may take their binoculars home and conduct a Safety Safari in their home or neighborhood. They can look in their homes for smoke detectors, first aid kits, window and door locks, safe places to keep poisons (including medicines), etc. They can look in their neighborhoods for crosswalks, road signs, McGruff Houses, hazardous areas, etc.
- Families may create a fire safety plan. If they already have a plan they can practice their plan on a regular basis. Students could also locate and change batteries in smoke detectors throughout their home.
- Students may administer the *Water Safety Anticipation Guide for Parents* and discuss safety measures their families can use to prevent drowning.

Additional Resources

Books

Dinosaurs, Beware! A Safety Guide, by Marc Brown and Stephen Krensky; ISBN 0316112194

Franklin's Bicycle Helmet, by Paulette Bourgeois; ISBN 0439121884

Officer Buckle and Gloria, by Peggy Rathmann; ISBN 0590976439

Media

Take a Stand, by Steve James ***Buckle Up!*** (Prevention Dimensions, something good, Inc.)

Web sites

http://www.mcgruff-safe-kids.com/

http://www.unicef-icdc.org/publications/pdf/repcard2e.pdf

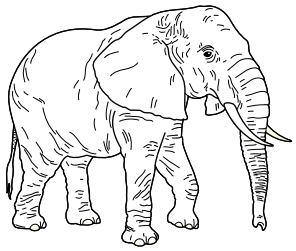
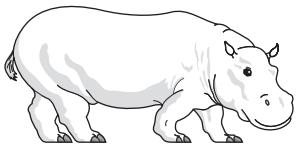
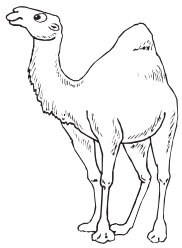
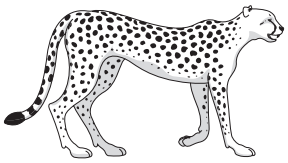
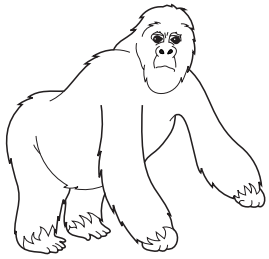
http://www.usa.safekids.org/tier3_cd_2c.cfm?content_item_id=19010&folder_id=540

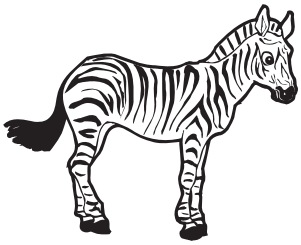
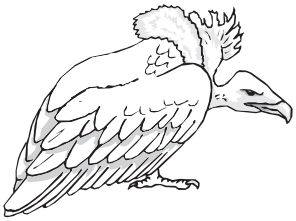
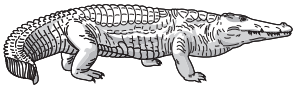
Organizations

Utah Department of Health (VIPP), PO Box 142106 Salt Lake City, UT 84114-2106, phone 801-538-6864, http://health.utah.gov/vipp

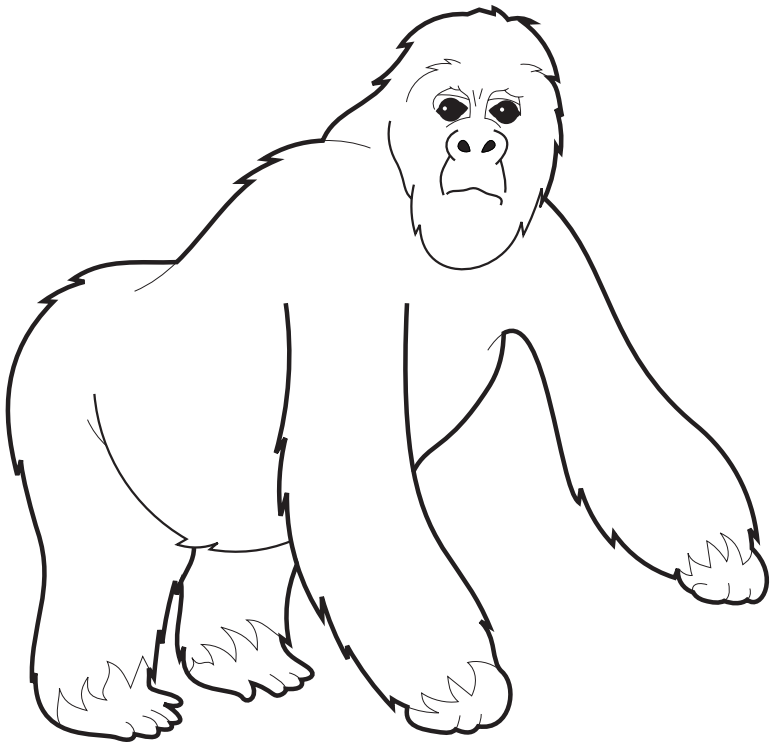
Name _____

Anticipation Guide

	Is this true? Yes No	It is safe to take off your life jacket if the boat you are in is not moving.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	It is safe to swim alone if the water is not very deep.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You should always wear a seat belt even if you are just driving down one street.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	A second grader should not sit in the front seat of a car.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	Some poisons look like drinks or candy.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You should not wear a bicycle helmet if you are in your own driveway.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		

	Is this true? Yes No	You should never tie any ropes or strings around your neck.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If a stranger tells you to get in a car you should listen to the stranger.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	Children should call 911 if their pet is lost.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If you find matches you should always give them to a grown-up.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You can cross the street anywhere you want if you run quickly.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If your ball goes in the street you should chase the ball.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		

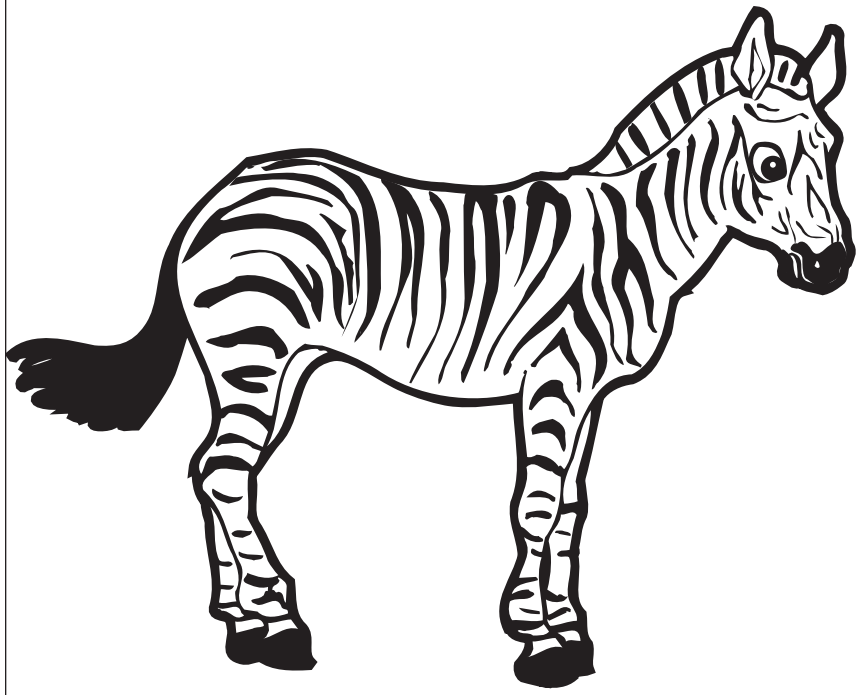
Safety Safari Signs



Gorilla says you should always wear a bicycle helmet if you are on a bike. You should wear a helmet in your driveway.

Hippopotamus says you should never swim alone. You should not swim alone even if the water is not deep.

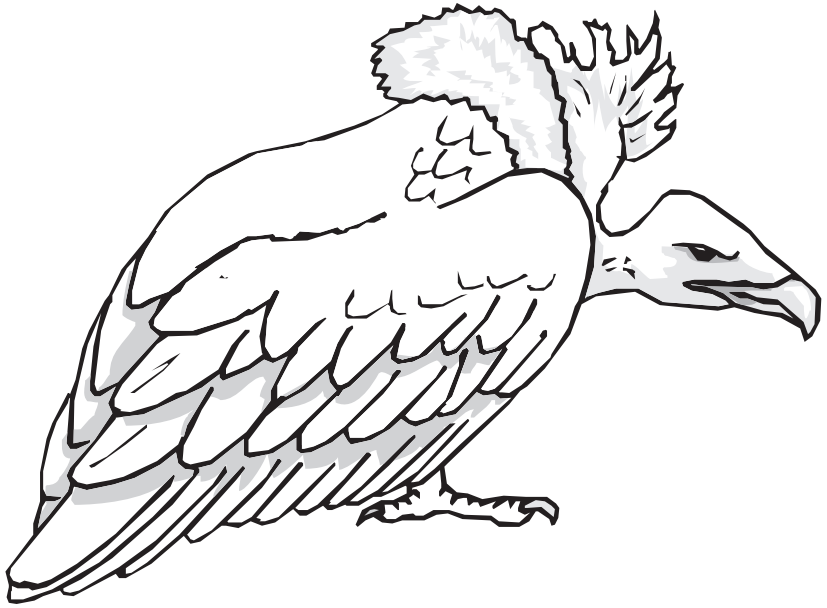
Safety Safari Signs



Zebra says that you should never tie any ropes or strings around your neck. Also you should not tie jump ropes around your neck.

Ostrich says never talk to strangers and never get in a car with a person you don't know. If a stranger tells you to get in their car, run away and tell an adult.

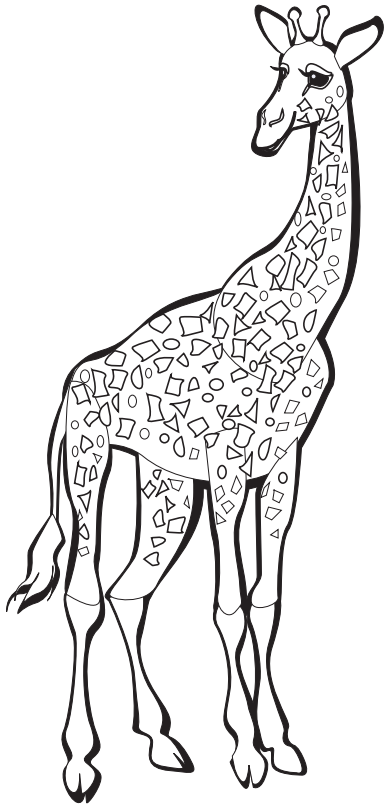
Safety Safari Signs



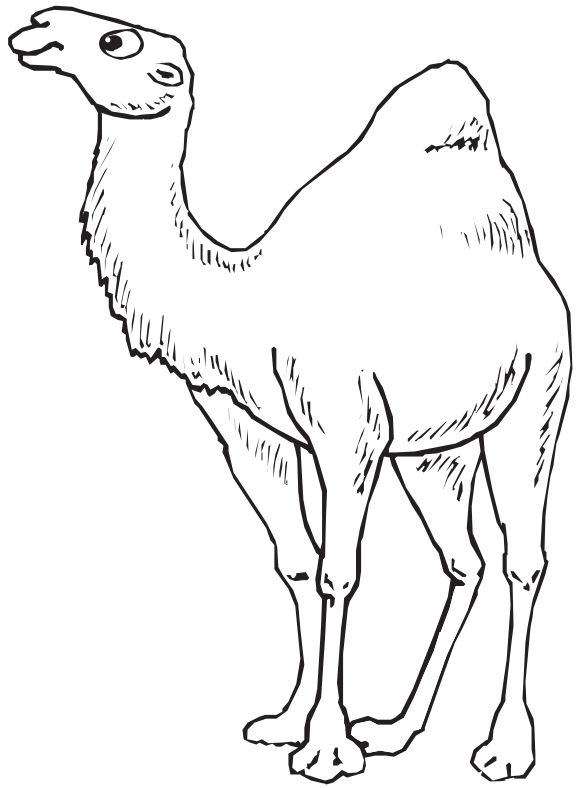
Vulture says you should call 911 if there is an emergency. If you lose your pet you should not call 911. You should tell your family.

Lion says you should never play with or try to start matches on fire. If you find matches you should give them to a grown-up.

Safety Safari Signs

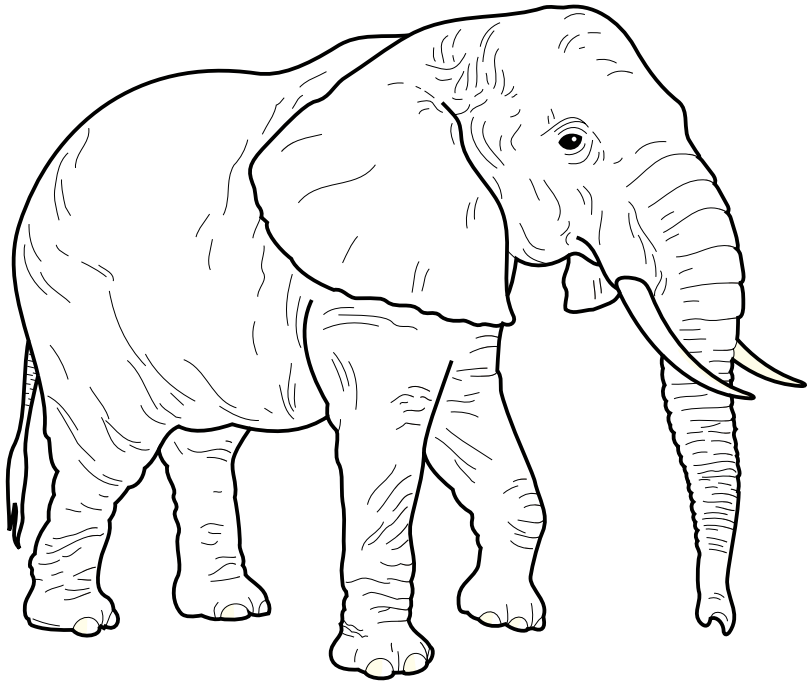


Giraffe says that the safest place for second graders to sit is in the back seat of a car. Second graders should not sit in the front seat.

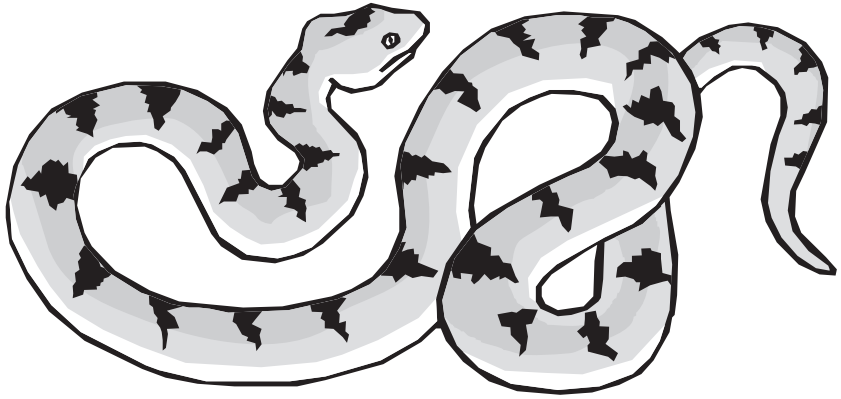


Camel says you should wear a seat belt anytime the car is moving. You should wear a seatbelt driving down your street. You should even wear a seatbelt in your driveway.

Safety Safari Signs

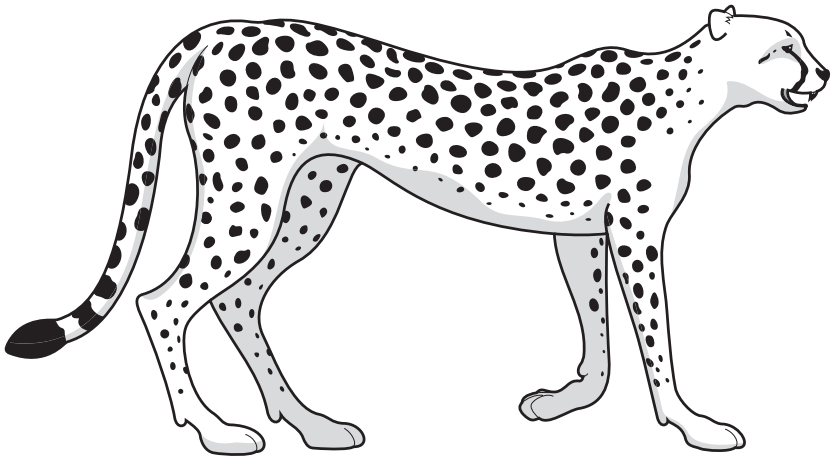


Elephant says you should always wear a life jacket when you are near or on the water. You should wear a life jacket even if the boat is not moving.

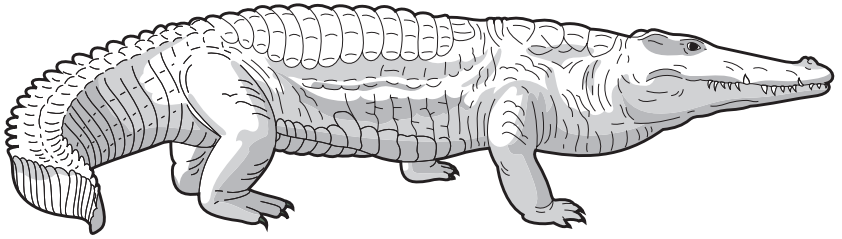


Python says if your ball goes in the street you should ask an adult to get it for you. You can also look both ways and if there are no cars coming, you can get your ball. Never crawl under a car or bus to get something.

Safety Safari Signs



Cheetah says some poisons look like candy. Some poisons look like drinks. If you find something that looks like candy or a drink you should always ask an adult before you put it in your mouth. It may be poison.



Crocodile says you should never walk into the street unless you stop and look both ways and check for cars. It is best to cross the road when you are at a crosswalk.

Name _____

Water Safety Anticipation Guide for Parents

Read each statement. If you think the statement is true put an X on the word yes.
If you think that the statement is not true put an X on the word no.

Yes	No	1. Drowning is the fourth leading cause of death among children ages 1 to 14.
Yes	No	2. Nearly 90% of drowning deaths happen while a child is being supervised.
Yes	No	3. Drowning that occurs in the bathtub accounts for more than 10% of all childhood drowning deaths.
Yes	No	4. Most children who drown in pools had been missing from sight for fewer than 10 minutes.
Yes	No	5. Since 1980 less than 50 children have drowned in pools and spas.
Yes	No	6. Children can drown in as little as one inch of water. Children drown in bathtubs, wading pools, diaper pails, toilets, and buckets. It is estimated that 30 children drown each year in buckets.

Answers:

1. No: Drowning is the second leading cause of death.
2. Yes
3. Yes
4. No: Most children had been missing less than 5 minutes.
5. No: More than 230 children have drowned in pool and spas.
6. Yes

Math II-2

Activities

Missing Addends

Circle the Wagons a Number is Missing

Standard II:

Students will model, represent, and interpret patterns and number relationships to create and solve problems with addition and subtraction.

Objective 2:

Model, represent, and interpret number relationships using mathematical symbols.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
2. Understand and use basic concepts and skills.

Content Connections:

Math I-1 & 3; Language Arts VIII-6

Math Standard II

Objective 2

Connections

Background Information

This activity is designed to give the students an opportunity to work in pairs as they search for the missing addend that will complete a mathematical sentence. Students will demonstrate the ability to change the order of the addends and still produce the same sum. To insure a smooth transition into the activity, modeling of what the activity is suppose to look like will have had to be previously taught and practiced.

Research Basis

Walters, L. S., (2000). Putting Cooperative Learning to the Test. *Harvard Education Letter*. May/June 2000. (1-6).

Cooperative learning in the classroom has a strong research base. Teachers are moving away from the traditional teaching methods, rearranging their students into groups where they are encouraged to talk and share ideas as they shift to accommodate more teamwork within the classroom. Two essential components need to exist for cooperative learning to lead to significant gains in achievement. The first key component promotes interdependence with groups -- fostering the perception that students must work together to accomplish the goal. The second key component is to hold students individually accountable for demonstrating their understanding of the material. Students cannot "hitchhike" within the group.

Lacampagne, Carole, B. (1993). State of the Art: Transforming Ideas for Teaching and Learning Mathematics. Office of Educational Research and Improvement, July 1993. (1-14)

This research covers some fundamental shifts for the teaching and learning of mathematics. For teachers, administrators, and parents, it presents ten ideas for transforming mathematical teaching. A major focus is that all students can and must learn mathematics.

Mathematics is not linear and hierarchical with teaching rote skills first, followed by problem solving later; but builds on that students learn best when they are intellectually challenged so that they are motivated to fill in mathematical gaps when necessary. Teachers need to provide stimulating problems and an environment to motivate mathematical learning.

Invitation to Learn

Pass out a card with an addend on it to each student. The cards should be numbered 0-10. Instruct the students that their assignment is to find someone who has an addend that when added to their addend will produce the sum of ten. Once they have found the addend to complete the assignment have them stand next to each other and hold up their cards. You will collect the cards and make a quick assessment to see if each pair is correct. Now that each student has a partner we will play a game. Each pair will face each other and put one hand behind their back. On the teachers mark each student will show the hand they have been hiding showing a number of fingers (1-5). The student who can correctly give the sum of the two hands quicker wins that round. The students who did not win will take their seats and the remaining students will pair up with the student closest to them and play the game again. The game is played until one student remains. Discuss with the students why for some of them it was easier than it was for others.

Instructional Procedures

Materials

- ❑ *Missing Addend Sentence Cards*
- ❑ *Numeral Cards*
- ❑ Dice
- ❑ *Missing Addend – Dice*
- ❑ Math Journal
- ❑ Pencils

1. Students will be separated into two equal groups. Have one group form a circle, each student should face outward. This will be the inside circle. Have the second group of students form a circle around the first circle. Each student should face inward and line themselves up with a student from the inside circle. If there is an odd amount of students have two students from the outside circle pair up.
2. Each student from the outside circle should be given a card from the *Missing Addend Sentence Cards.*
3. Each student from the inside circle should receive a card from the *Numeral Cards.*
4. Tell the students facing each other to check and see if the numeral the student is holding in the inner circle will make the math sentence held by the outer circle student true. If the sentence is true have the pair exit the circle, collect their math

journals, and return to one of their tables as a pair. Together the pair should record their math sentence in their math journal and then create and record a math family from the original sentence.

5. After all of the students whose sentences are true have left the circle have the remaining students in the outer circle rotate to the right and go through the process found in step 4. Continue this until all the students have found the math sentence or the numeral that makes their sentence true.
6. All students should now be seated with their partners at a table. Hand out two dice and the worksheet *Missing Addend – Dice* to each pair.
7. Explain to the students that the sum they have been working with for their math family is going to be the sum for all of the missing addend problems they will be creating. To complete the worksheet they will first fill in the blank for the sum, and then they will roll the dice and record the number of dots for each dice in the space that looks like dice. The sum of the dice will be recorded on the line above the picture of the two dice. The students will then solve the addition sentence for the missing addend. The missing addend will be recorded on the worksheet in the missing addend symbol.
8. For closure to the lesson have a few of the pairs share with the class how they went about solving the worksheet.

Assessment Suggestions

- Observe how the students work together – does one student dominate the activity?
- Have the students share with you what they are recording in their math journal.
- Use the *Missing Addend –Dice* worksheet.
- Have the students verbally explain their thinking process.

Curriculum Extensions/Adaptations/ Integration

- The number of dice can be increased or decreased.
- Instead of using dice you could use dominoes.
- This activity can be adapted to make a station for a math center.

Family Connections

- Have the students teach their families the different activities used in class.
- Have family members use household items to create real life situations with missing addends.

Additional Resources

Books

Mission Addition, by Loreen Leedy; ISBN 0823414124

Quack and Count, by Keith Baker; ISBN 0152050256

M&M's Counting Book, by Barbara Barbieri McGrath; ISBN 0-88106-853-5

Web sites

www.lessonplanet.com

www.aaamath.com

www.edhelper.com

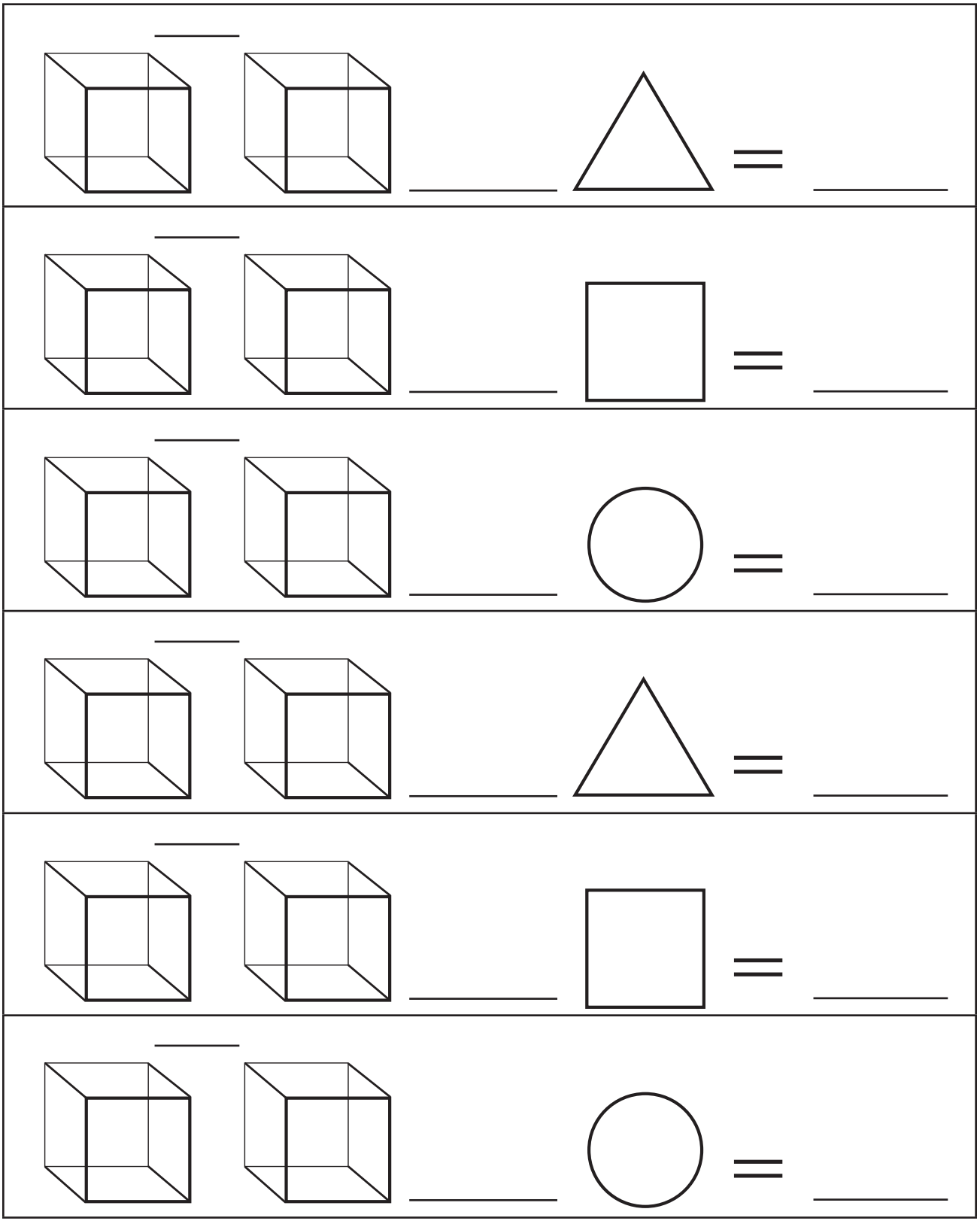
Missing Addend Sentence Cards

4 + □ = 12	5 + □ = 12	6 + □ = 12
7 + □ = 12	8 + □ = 12	9 + □ = 12
10 + □ = 12	11 + □ = 12	

Numeral Cards

1	2	3
4	5	6
7	8	9
10	11	12
0		

Missing Addend - Dice



What's Your Function?

Math Standard II

Objective 2

Standard II:

Students will model, represent, and interpret patterns and number relationships to create and solve problems with addition and subtraction.

Objective 2:

Model, represent, and interpret number relationships using mathematical symbols.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
2. Understand and use basic concepts and skills.

Content Connections:

Math I-1 & 3; Language Arts VIII-6

Connections

Background Information

This activity is designed to give the students an opportunity to demonstrate their cognitive skills. Students will be presented with conditions that will require the ability to make sense of a mathematical situation with missing information. Students will recognize that some function has taken place and their assignment will be to figure out what it was.

Research Basis

Walters, L. S., (2000). Putting Cooperative Learning to the Test. *Harvard Education Letter*. May/June 2000. (1-6)

Cooperative learning in the classroom has a strong research base in which teachers are moving away from the traditional teaching methods, rearranging their students into groups where they are encouraged to talk and share ideas as they shift to accommodate more teamwork within the classroom. Two essential components need to exist for cooperative learning to lead to significant gains in achievement. The first key component promotes interdependence with groups -- fostering the perception that students must work together to accomplish the goal. The second key component is to hold students individually accountable for demonstrating their understanding of the material. Students cannot "hitchhike" within the group.

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This research covers some fundamental shifts for the teaching and learning of mathematics. For teachers, administrators, and parents, it presents ten ideas for transforming mathematical teaching. A major focus is that all students can and must learn mathematics. Mathematics is not linear and hierarchical teaching rote skills first

followed by problems solving later; but builds on that students learn best when they are intellectually challenged so that they are motivated to fill in mathematical gaps when necessary. Teachers need to provide stimulating problems and an environment to motivate mathematical learning.

Invitation to Learn

Pass out a cup of beans and the worksheet *Balance the Beans* to each student. Draw a picture of the scale and the shapes on the chalkboard. Explain to the students that they can balance the scale by placing beans in the square, circle, and the triangle. Display the following rules on the chalkboard or on chart paper and then discuss them.

- Shapes that are the same must have the same number of beans in them.
- Shapes that are different must hold a different amount of beans.
- All shapes must have some beans.
- The two sides must balance by having the same amount of beans on both sides.

Instruct the students to balance 12 beans. Now try and balance it with 15 beans, and finally have them balance 18 beans. Record in their math journal what they have learned from this experience.

Materials

- ❏ Bag of beans
- ❏ *Balance the Beans*
- ❏ *Function Box*
- ❏ Empty half gallon carton
- ❏ Duct tape
- ❏ *Function Box Cards*
- ❏ Math Journal
- ❏ Pencils

Instructional Procedures

1. Construct the box – See *Function Box* black line for instructions.
2. Create function box cards of 10's, 12's, 15's, 18's, as well as random amounts. The smaller numeral should be written in black and the larger number should be written in blue.
3. Review with the students what they have learned about the symbols +, -, = and ≠.
4. Explain that the *Function Box* performs math functions using the symbols we have just discussed and a missing addend. The students are to use their knowledge to figure out what function is being used and what is the missing addend.
5. Introduce the acronym T.I.P.S. T represents Thought – what function is being used? I represents Information – what information do you know? P represents Plan – how are you going to solve this problem? S represents solution – what is the missing addend?

6. Model to the students how the box works using the function 10 cards. Put a black 3 in the box and pull out a blue 10.
7. Have the students discuss what they have observed and then using T.I.P.S., record what happened in the function box in their math journals. Model on the chalkboard how this should look in their journals. Students could also include thoughts and pictures (students should have access to beans or another type of manipulative to help if necessary).
8. Continue working with the function 10 cards, students should create a T.I.P.S. record for all of the problems in their journal.
9. The next day change which color goes into the box first blue 10 into the box black 3 out of the box. Students should discuss their observations and record their findings in their math journal. Remind them of T.I.P.S.
10. Continue working with the function 10 cards, students should create a T.I.P.S. record for all of the problems in their journal.
11. Now model the *Function Box* using the random function cards. This can produce an addition sentence or subtraction sentence. Students should discuss their observations and record their findings in their math journal.
12. The next day, create a *Function Box* and *Function Box* cards for each student.
13. Have students work in pairs alternating turns with their *Function Box*. After each turn they should discuss and then record in their journals using T.I.P.S. what they observed.

Assessment Suggestions

- Observe how the students work together – does one student dominate the activity?
- Have the students share with you what they are recording in their math journal.
- Have a student demonstrate how the box works, walking you through a step-by-step process.

Curriculum Extensions/Adaptations/ Integration

- Have students write a story involving the *Function Box*.
- Create easier or more difficult *Function Box* cards depending upon students' mastery of the skill.
- This activity can be adapted to make a station for a math center.

Family Connections

- Have the students take home their *Function Box* and share it with their families.
- Have family members create missing addend problems that can be used with the student's function box.

Additional Resources

Books

Counting Crocodiles, by Jody Sierra and Will Hillenbrand; ISBN 0-15-200192-1

Ten Flashing Fireflies, by Philemon Sturges; ISBN 1558586741

Seven Blind Mice, by Ed Young; ISBN 0698118952

Web sites

www.lessonplanspage.com

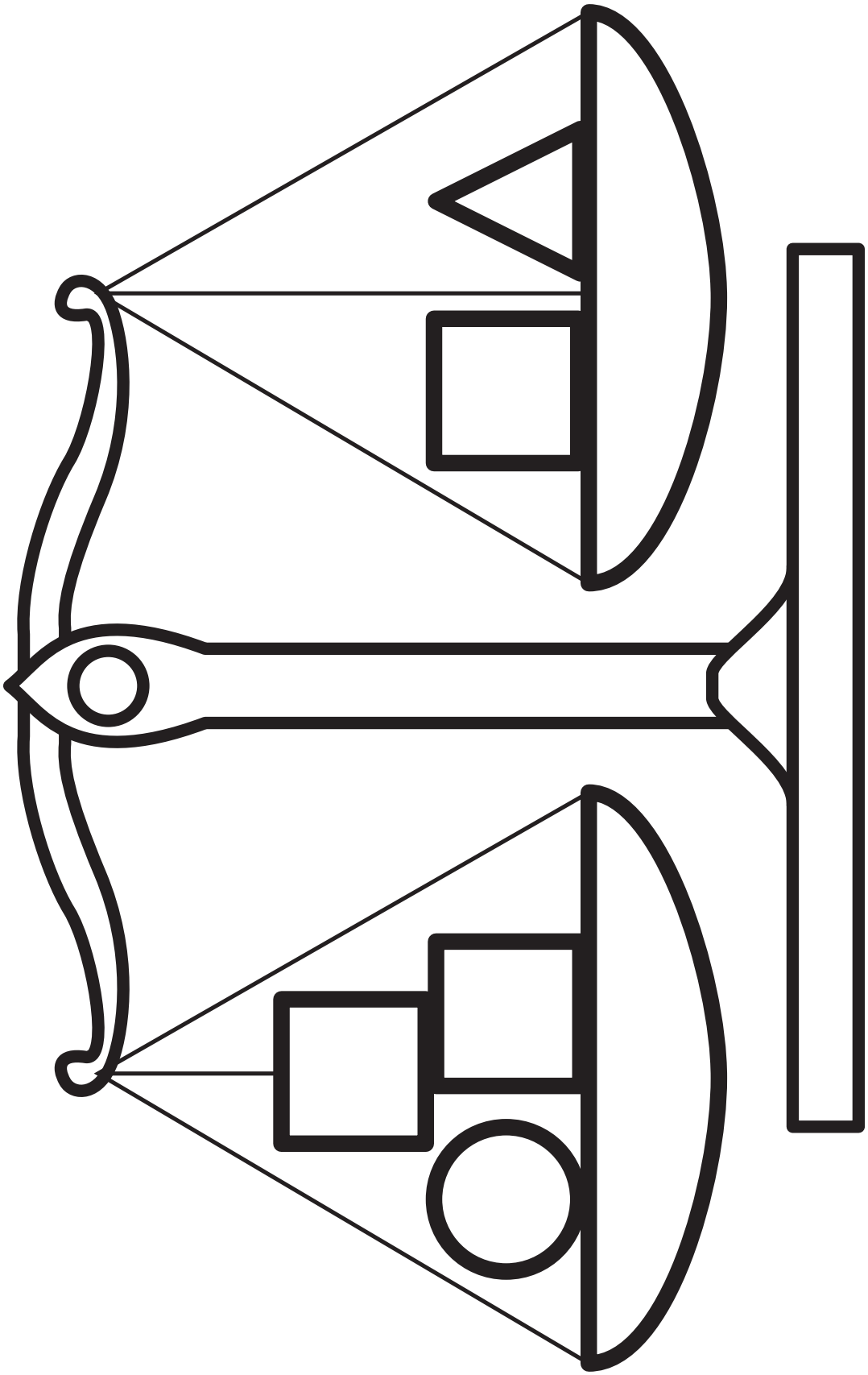
www.americanteachers.com

www.atozteacherstuff.com

www.abcteach.com

www.sitesforteachers.com

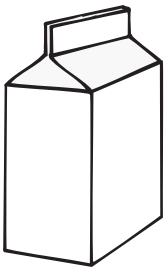
Balance the Beans



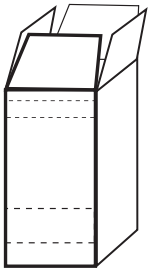
Function Box

Materials

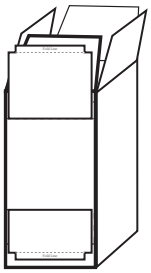
- ❏ 1/2 gallon card board container. (1/2 gallon orange juice or milk carton)
- ❏ Card stock
- ❏ Duct tape



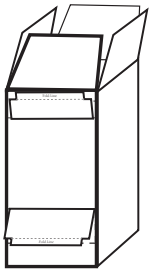
Unfold top fo box.

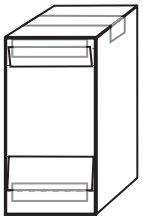


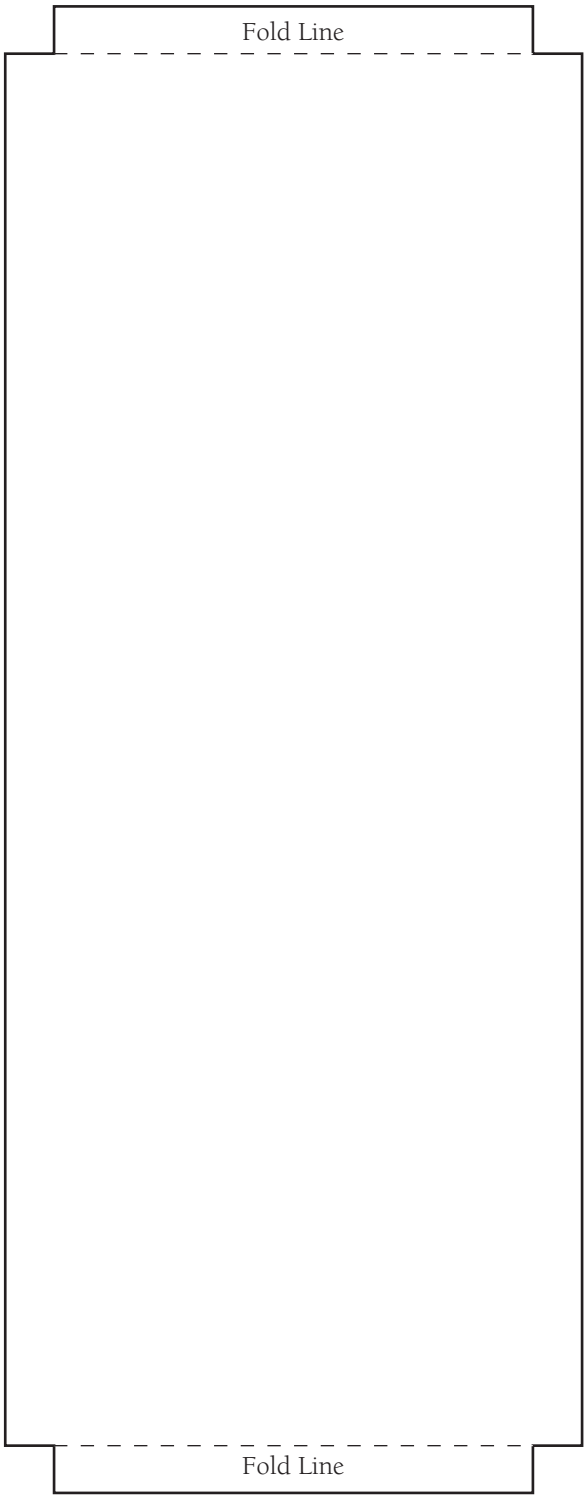
Cut two slits into box. First slit start 1/2 inch from top and is 1/2 inch down and all the way across the box, up then back across. Second slit start 1 inch from bottom and go up 2 inches then all the way across the box, down and back across.



Cut form from card stock. Fold at top and bottom and curve the card stock. Place in top slot feed through to bottom slot, tape to bottom of slit 2 first then push into box, it should curve. Then tape form to top of slit 1 and tape top down flat.







Function Box Cards

Content II-2

Activities

Community & Culture

Where do you live?

Standard II:
Students will develop a sense of self in relation to families and community.

Objective 3:
Examine important aspects of the community and culture that strengthen relationships.

Intended Learning Outcomes:
1. Compare rural, suburban, and urban communities.

Content Connections:
Math III-3; Collect, organize data, Language Arts I-2; Develop language

Content Standard II

Objective 3

Connections

Background Information

Farms, ranches, large animals, houses spaced far apart, sporadic traffic, and children riding the bus to school often characterize rural communities. Rural communities are often referred to as "the country".

Suburban communities are areas located outside of large cities. They are often characterized by individual homes located in neighborhoods that have yards. There is less traffic than in the city. Children ride buses, bikes, or they may walk to school, while parents often commute to work.

Urban communities are areas of high population density, with people living close together (often apartments), and lots of traffic. They usually boast easy access to movie theaters, restaurants, subways or other forms of mass transportation. Libraries, museums, sports arenas, zoos, and parks are often found there.

Research Basis

Emmer, E.T., Gerwels, M. C., (2002). Cooperative Learning in Elementary Classrooms: Teaching Practices and Lesson Characteristics. Retrieved from *The Elementary School Journal,* Vol. 103 (Number 1) p.75-91

Cooperative Learning opportunities for students allow them to be able to learn as they process information in small group situations. Every student is accountable for their part in the group's final product. This process helps improve student motivation, social skills, and attitudes towards learning.

Collinston, E., (2000). A Survey of Elementary Students' Learning Style Preferences and Academic Success. EBSCO. Retrieved January 20, 2007, from http://ebscohost.com

There are several different learning styles. Learning styles include the ways that students learn, process, retain information, and behave.

Some of these include the following: visual, auditory, and tactile. Catering to a variety of styles ensures that all students will be able to be successful learners. It is especially important for the low achieving students who generally prefer to learn as one or more peers assist them, and as they are provided many hands-on experiences.

Invitation to Learn

Students are invited to cut and sort the *Community Characteristic Cards* into groups. After sorting, students can explain to the class what criteria they used to sort them.

Instructional Procedures

Materials

- ❑ *Large Community Cards*
- ❑ *Community Characteristic Cards*
- ❑ *Through the Community* game board
- ❑ *Through the Community* blank game board
- ❑ Game pieces
- ❑ Dice
- ❑ Hula-hoops

1. Review the differences between urban, suburban, and rural communities.
2. Write the categories on the board. Pass out a *Large Community Card* to each student and have them place their cards under the correct heading.
3. Tell them that some of the cards share the same category. Divide the students into small groups and tell them to choose two types of communities to compare and contrast. (Each small group will need to use one set of the *Small Community Cards* for this activity.) Have them display their work by creating a Venn diagram and labeling each one by placing a name card above each circle. (A Venn diagram may be created by overlapping two hula-hoops.) Tell the students to place pictures in the appropriate categories. Assign one person from each group to explain to the class how they separated the cards while displaying their Venn diagram. The rest of the class will need to gather around their display.
4. Introduce the students to the *Through the Community* game board.
5. Teach the rules of the game and allow them time to play it.
   a. Each player picks a game piece and places it on start.
   b. Players take turns rolling the dice and moving their piece.
   c. Students read the space they land on and follow the directions.
   d. The first student to the finish line wins.
   e. Students can start over after their group has a winner.
6. Divide students into small groups. Give each student a 3x5 card. Students help each other decide which kind of community

each person lives in. As the decisions are made about each one, have them write it down on their card.

7. Using the headings that were previously written on the board, have students place their cards under the appropriate heading.
8. Display each type on a bar graph and generate a class discussion about the results.
9. Play Community Round Up. This game needs to be played in the gym or outside. Choose two students to represent each of the community types. Have these students wear or hold something to help distinguish them as a type of community. Hand cards out with the name of the community they are representing written on them. These students shouldn't let the other students know which card they are holding yet. Divide equal amounts of *Small Community Cards* to represent the three different communities. Designate a location where each of the communities will be located. When the teacher starts the game, the students who are "it" try to catch the other students. When a student is caught, they will need to show their card to their "catcher," and the "catcher" must show their card to the student who is "it." If the cards match together according to the criteria of the community, they are caught and must go to the location assigned for that community. If it doesn't fit, they are free to go. When a community is filled with the designated amount of students who are holding cards that represent that community, the teacher gives the stop signal. Each of the students will need to hold up their cards while telling the rest of the class which cards they have. If all of the cards meet the criteria of that community, that community wins. The teacher chooses different students to represent the communities, and instructs the remaining students to trade their cards and play again.

Assessment Suggestions

- The teacher verbally describes a rural, urban or a suburban community, or holds up some Community Cards to represent one. The students write their responses on their dry erase boards by writing an R for rural, S for suburban, and U for Urban. When they are finished they hold up their board for the teacher to see.
- Using the *Blank Community Game Board,* have students create their own game using situations that are appropriate for the different types of communities. This could be done in small

groups or individually. After creating the game, they could invite others to play it.

Curriculum Extensions/Adaptations/ Integration

- Have students create pop-up cards representing the different community types.
- Create a paper pyramid and label each side as an urban, rural, or suburban community. Have the students sort the *Small Community Cards* and glue them to the appropriate side of the pyramid (Triorama).
- Have students develop a computer presentation about the different community types and have the class present their work to another class or to their parents.

Family Connections

- Students could create a poster with pictures and drawings of their house and family.
- Invite the students to draw or collect pictures with their families to represent each of the three communities.
- Students could take their game, *Through the Community,* home and play it with their family.
- Have the students write a letter to a relative who lives in a different type of community. Have them describe their community to them and ask the relative to write a letter back and describe their community.

Additional Resources

Books

On the Town: A Community Adventure, by Judith Casely; ISBN 0060295848

Community Helpers from A-Z, by Bobbie Kalman and Niki Walker; ISBN 0865054045

Curious George Takes a Job, by H.A. Rey; ISBN 0395186498

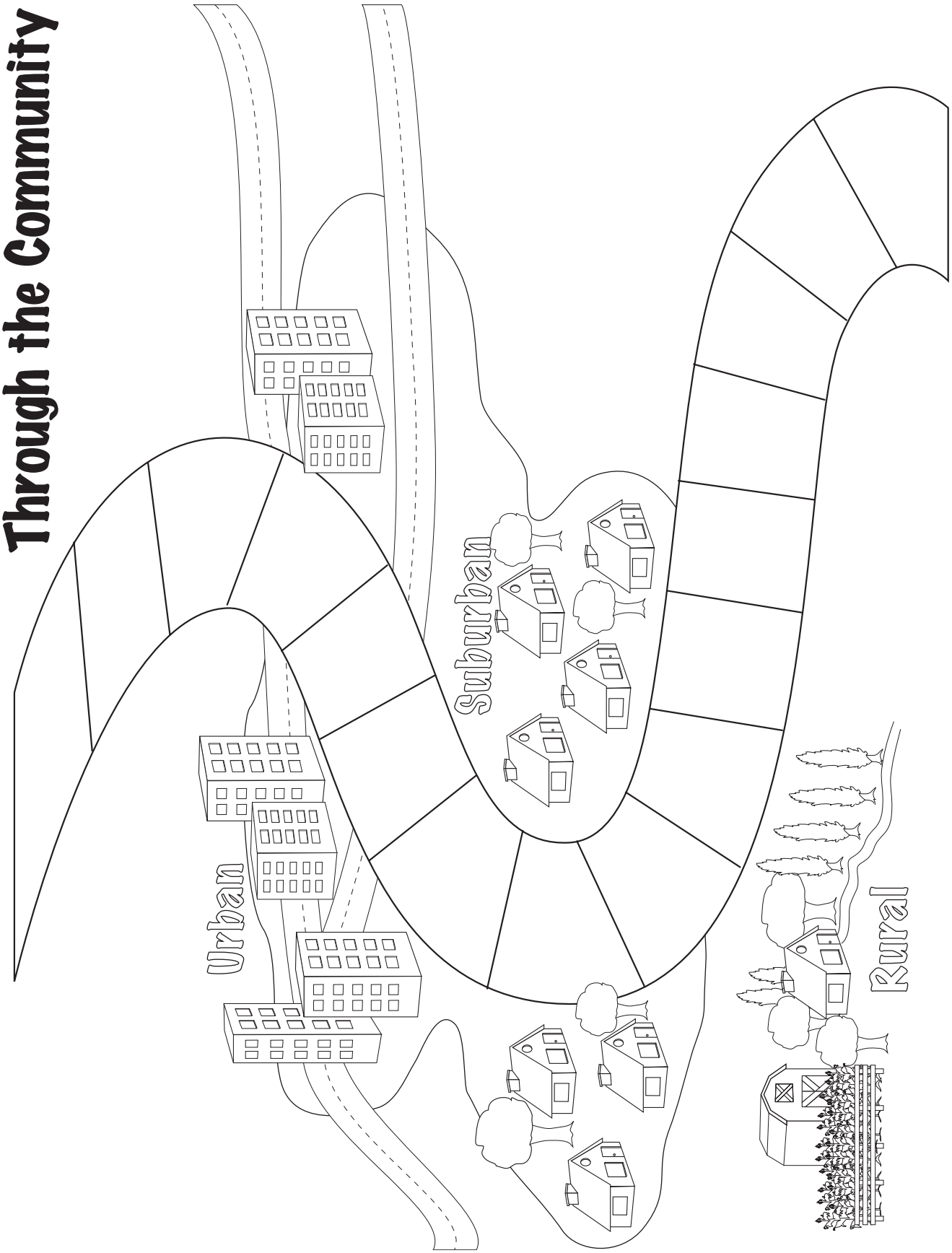
Helping Out, by George Ancona; ISBN 0395547741

Media

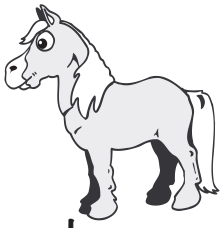
City, Suburb, and Rural Communities, by School Videos: Education in motion; ISBN 1585412007

Through the Community
Finish
Ride bus to school.
Cows had calves move forward one space.
Wind storm ruins wheat. Go back one space.
Dad has to drive 35 minutes to go to work.
Get a new dog. Go ahead one space.
Mom's late for work. Go back one space.
Went to the zoo with your family
Went to a good movie. Go ahead one space.
Yard isn't big enough for a horse. Go back one space.
Won soccer game. Get rootbeer floats with friends.
Got a new bike. Go for a ride with a friend.
Four wheeler gets stuck in the mud.
Spring planting goes well. Move forward one space.
Get a new horse. You live in the country.
Start
Urban
Suburban
Rural

Through the Community



Community Characteristic Cards

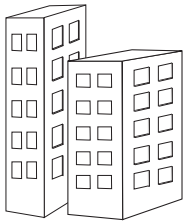


horse

trax train

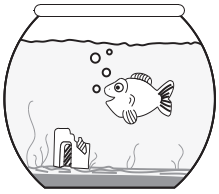
farm house

house



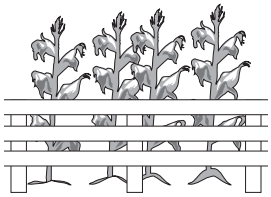
apartment

traffic jam

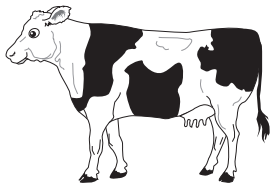


goldfish

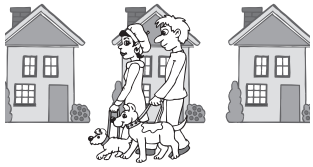
soccer game



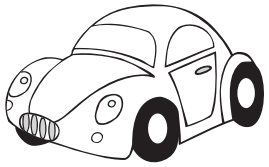
cornfield



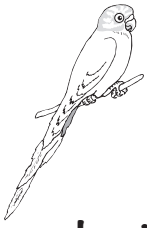
cow



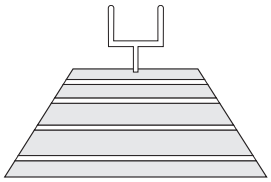
walking dog



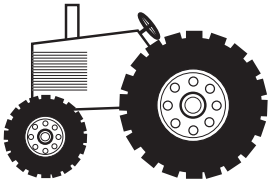
car



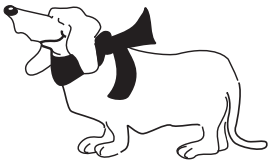
parakeet



football stadium

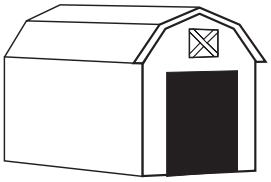


tractor



dog

bike



barn

zoo

cat

Joshua Disobeys!

Content Standard II

Objective 2

Standard II:
Students will develop a sense of self in relation to families and community.

Objective 2:
Examine important aspects of the community and culture that strengthen relationships.

Intended Learning Outcomes:
Explain why families, school, and communities have rules.

Content Connections:
III-3; Sort, organize data; Language Arts I-2; Develop language; Content I-3; Communicate ideas, information

Connections

Background Information

Students often complain about the many rules placed upon them by parents, school and community officials. This lesson is to help them see that rules exist to keep themselves and others safe.

Research Basis

Collinston, E., (2000). A Survey of Elementary Students' Learning Style Preferences and Academic Success. EBSCO. Retrieved January 20, 2007, rom http://ebscohost.com

There are several different learning styles. Learning styles include the ways that students learn, process, retain information, and behave. Some of these include the following: visual, auditory, and tactile. Catering to a variety of these ensures that all students will be able to be successful learners. It is especially important for the low achieving students who generally prefer to learn as one or more peers assist them, and as they are provided many hands-on experiences.

Sheldon, K. L., ((1994). Including Affective and Social Education in the Integrated Curriculum. EBSCO. Retrieved January 20, 2007, from http://web.ebscohost.com

Children's literature is a valuable resource for teachers to turn to as they develop lesson plans to teach students about values. Social skills and effective education can be accomplished through an interdisciplinary approach.

Invitation to Learn

The teacher invites a student to challenge him/her to a game of checkers. The rest of the class gathers to watch the game. The teacher wins by not following the rules of the game. Afterwards, the teacher